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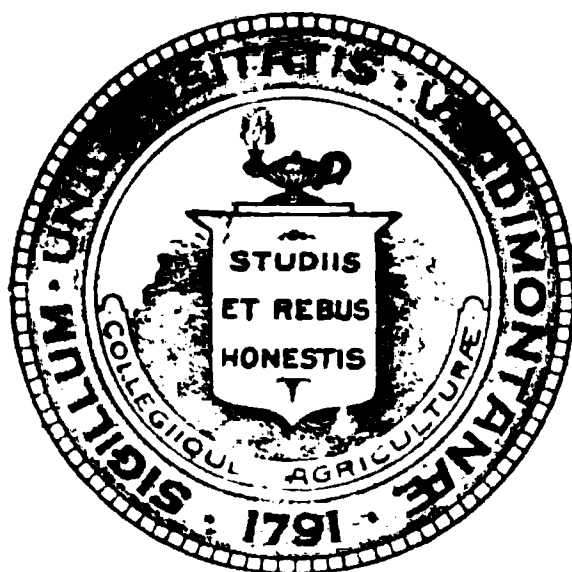
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CATALOGUE
OF THE
UNIVERSITY OF VERMONT

AND



STATE AGRICULTURAL COLLEGE

BURLINGTON, VERMONT

1891-92

CATALOGUE

OF THE

University of Vermont

AND

STATE AGRICULTURAL COLLEGE

BURLINGTON, VERMONT

1891-92

**BURLINGTON .
FREE PRESS ASSOCIATION,
Printers and Binders.
1892.**

CALENDAR.

1891.

30 Sept. Wednesday, A. M. First half-year began.
Thanksgiving Recess, From Wednesday evening before
Thanksgiving through the week.
Christmas Recess, Including Christmas day and New
Year's day.

1892.

1 Feb. Monday, Mid-year examinations begin.
11 Feb. Thursday, Second half-year begins.
30 Mch. to 5 April, Spring Recess.
16 June, Thursday, Final examinations begin.
25 " Saturday, 8 P. M. Junior Prize Debate.
26 " Sunday, 3 P. M. Baccalaureate Discourse.
26 " " 7.30 P. M. Anniversary of Y. M. C. A.
27 " Monday, Class Day.
28 " Tuesday, 9 A. M. Meeting of Phi Beta Kappa.
28 " " 10 A. M. Meeting of Alumni Association.
28 " " 3 P. M. Public Exercises of Phi Beta Kappa.
28 " " 7.30 P. M. Forest Prize Speaking.
29 " Wednesday, Commencement.
30 " Thursday, 9 A. M.)
and 2 P. M. (Examinations for admission.
27 Sept., Tuesday, Entrance examinations.

SUMMER VACATION OF THIRTEEN WEEKS.

28 Sept., Wednesday, 8.15 A. M., First half-year begins.
15 Oct., Freshman prize entrance examination.

DEPARTMENT OF MEDICINE.

1891.

29 Oct. Thursday, Preliminary Term began

1892.

25 Feb. Thursday, Regular Lecture Term begins.
4-8 July, Examination for Degrees.
11 July Monday, 7.30 P. M. Exercises of Graduation.

HISTORY AND CHARTERS.

“An Act for the purpose of founding a University at Burlington” was passed by the Legislature of Vermont, Nov. 2nd, 1791, of which the following are the Preamble and First Section :

“Whereas the education of youth is necessary for the advancement of morality, virtue and happiness, and tends to render a people or State respectable ; to promote which, establishments for Seminaries and Colleges have ever been patronized by all good governments ; and whereas several grants of land have already been made by the State, and private liberal donations have been offered, for promoting so needful an establishment within the same, which demand the attention of this Legislature for laying the foundation for an institution so beneficent to society ; therefore,

Section I. It is hereby enacted by the General Assembly of the State of Vermont, that there shall be and hereby is a College instituted and established at such place in the township of Burlington in the County of Chittenden as the Corporators hereinafter named shall think most convenient for that purpose, to be known and designated by the style of THE UNIVERSITY OF VERMONT.”

A subsequent act gave to the Corporation of the University “full power, right, and authority to appropriate to the use and benefit of the said University forever, all such lands as have been already granted and reserved by the authority of this State for the use and benefit of a College.”

The Act of Incorporation vested in the Trustees of the University of Vermont full power “to appoint, elect, support and remove from time to time, all such officers and servants as they shall find necessary ; to direct the studies of the youth ; to establish profes-

sorships and professors, and provide for their support ; to make and establish all necessary rules, regulations and by-laws for the orderly government of said University (provided always that the said rules, regulations and by-laws shall not tend to give preference to any religious sect or denomination whatsoever ;) to grant and confer all such degrees, literary titles, honors and distinctions as other Universities, Colleges and Seminaries have done or may of right do ; and to do any other thing which shall be found necessary for the government and welfare of such an institution."

With the consent of the Corporation certain changes were made by the Legislature in respect to the number and the mode of election of the trustees of the University by Acts passed Nov. 2nd, 1810, and October 31st, 1823, but these were, with like consent, repealed by the Act of October 30th, 1838, which revived and confirmed the provisions of the original charter, which charter remains in full force at the present time, with such modifications as the Corporation of the University accepted in 1865, in accordance with the provisions of the charter of The University of Vermont and State Agricultural College.

In 1862, largely through the exertions of Hon. Justin S. Morrill, then Representative and since Senator from Vermont, Congress passed an "Act donating public lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts." Under the provisions of this Act, the Legislature of Vermont chartered in 1862 the Vermont Agricultural College, which, failing to receive the support necessary to put it into operation, was by an act approved Nov. 6th, 1865, incorporated with the University of Vermont into one institution by the name of "The University of Vermont and State Agricultural College." This corporation is invested with the property, rights, powers and privileges which belonged to both or either of the corporations so combined,

and "shall be and remain a body corporate forever, for the purpose of carrying out the objects contemplated in the respective charters" of the two institutions.

The "objects contemplated" in the charter of the Vermont Agricultural College are stated in the exact language of the Act of Congress providing for Colleges of Agriculture and the Mechanic Arts, as follows :

"The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

The objects contemplated in the charter of the University of Vermont are stated in the Preamble and Sections as given above.

The charter of The University of Vermont and State Agricultural College requires that "there shall, at all times, be maintained in the institution hereby created, such instruction in the various branches of learning, as is contemplated in the several charters of each of the institutions hereby united ; and more particularly including a four years course of studies, similar to such as are generally taught in other colleges and not inferior to that recently taught in said University of Vermont; and in addition to that which is usually taught in other colleges, the instruction in this institution shall include such enlarged facilities, and extended scope and variety in the study of those branches which relate to military tactics, agriculture and the mechanic arts, as shall render the whole instruction in conformity with said act of Congress, as well as with the several charters aforesaid."

Section II of the Charter provides that, for the purpose of receiving property by gift, grant, bequest or otherwise, and for certain other purposes therein specified, each of the original corporations shall be deemed and treated as having continued in life.

Gifts and bequests may therefore be made to (1) The University of Vermont, (2) The Vermont Agricultural College, (3) The University of Vermont and State Agricultural College.

By the provisions of

“An Act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress, approved July second, eighteen hundred and sixty-two,” the institution receives from the United States Treasury an annual appropriation to be applied “only to instruction in Agriculture, the Mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction.”

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- JAMES R. HAYDEN,** New York City.
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- FRANK ADONIRAM RICH, V. S.** 98 Cherry St.
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Instructor in Mathematics and Secretary of the Faculty.
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Frank Dyer Farr, <i>Cl.</i>	<i>Bristol.</i>	11 S. College.
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Robert Ellsworth Lewis, <i>L. S.</i>	<i>Berkshire.</i>	2 Colchester Ave.
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George Frederic Pitkin, <i>Cl.</i>	<i>Palmyra, N. Y.</i>	5 S. College.
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Joseph Dana Allen, <i>Cl.</i>	<i>Burlington.</i>	142 University Place.
Lyman Allen, <i>Cl.</i>	<i>Burlington.</i>	142 University Place.
Richmond Edmund Armstrong, <i>Cl.</i>	<i>Richford.</i>	7 S. College.
John Waite Avery, <i>Cl.</i>	<i>Jerseyville, Ill.</i>	2 Colchester Ave.

Cl. — Classical.

L. — Literary-Scientific.

E. — Engineering.

Ch. — Chemical.

Ag. — Agricultural.

Sp. — Special.

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James Dewey Benedict, <i>Cl.</i>	<i>Brooklyn, N. Y.</i>	81 S. Prospect St.
Frederic George Bottum, <i>L. S.</i>	<i>Rutland.</i>	2 Colchester Ave.
Patrick Henry Boyle, <i>Cl.</i>	<i>Essex, N. Y.</i>	7 S. College.
Mary Brigham, <i>Cl.</i>	<i>Hyde Park.</i>	480 Main St.
Herbert Isaac Collins, <i>Ag.</i>	<i>Strafford.</i>	Exp. Station.
Lillian Estelle Corse, <i>L. S.</i>	<i>Richford.</i>	489 Main St.
William Murray Crombie, <i>L. S.</i>	<i>Burlington.</i>	236 S. Prospect St.
Frank Grant Cudworth, <i>L. S.</i>	<i>Bristol.</i>	78 N. Prospect St.
Edward Harrington Deavitt, <i>L. S.</i>	<i>Montpelier.</i>	3 S. College.
Horace Edward Dyer, <i>Cl.</i>	<i>Rutland.</i>	3 S. College.
Ira Harwood Ellis, <i>Cl.</i>	<i>Bethel.</i>	1 N. College.
John Maurice Evans, <i>E.</i>	<i>Chateaugay, N. Y.</i>	Y.M.C.A. Building.
Edgar Horace Farr, <i>Cl.</i>	<i>Bristol.</i>	11 S. College.
John Albert Goodrich, <i>E.</i>	<i>Chateaugay, N. Y.</i>	Y.M.C.A. Building.
John Charles Fremont Hayford, <i>E.</i>	<i>Johnson.</i>	16 S. College.
William Hazen, <i>Cl.</i>	<i>Richmond.</i>	13 S. College.
Thomas Chittenden Hill, Jr., <i>L. S.</i>	<i>Charlotte.</i>	3 S. College.
Frederick Amos Holbrook, <i>Oh.</i>	<i>Colchester.</i>	4 S. College.
Henry Jennings Kilbourn, <i>Cl.</i>	<i>Racine, Wis.</i>	2 Colchester Ave.
Margaret Allen King, <i>L. S.</i>	<i>Cairo, N. Y.</i>	2 Colchester Ave.
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John Elbridge Miller, <i>E.</i>	<i>E. Barnard.</i>	1 N. College.
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Harry Albert Noyes, <i>Cl.</i>	<i>Hyde Park.</i>	412 Maple St.
Henry Curtis Petty, <i>Cl.</i>	<i>Burlington.</i>	15 S. College.
Frances Marcella Pierce, <i>Cl.</i>	<i>Rutland.</i>	85 S. Prospect St.
Erasmus Arlington Pond, <i>L. S.</i>	<i>Rutland.</i>	124 N. Union St.
Nathaniel Miller Pratt, <i>Cl.</i>	<i>Plainfield.</i>	5 N. College.
Eugene Strausz Rice, <i>Cl.</i>	<i>Chester.</i>	10 S. College.
Ernest Henry Root, <i>Sp.</i>	<i>N. Craftsbury.</i>	13 N. College.
Eugene Nelson Sanctuary, <i>E.</i>	<i>Hinesburgh.</i>	65 N. Winooski Ave.

Names.	Residence.	Rooms.
Loyal Ethelbert Sherwin, <i>Cl.</i>	<i>Chester.</i>	7 S. College.
Ralph Aldace Stewart, <i>L. S.</i>	<i>E. Wallingford.</i>	Middle College.
Oella Azuba Thompson, <i>L. S.</i>	<i>Hyde Park.</i>	85 Colchester Ave.
Henry Augustus Torrey, <i>Cl.</i>	<i>Burlington.</i>	75 S. Prospect St.
Frank Richardson Wells, <i>L. S.</i>	<i>Burlington.</i>	58 Willard St.
Tenney Hall Wheatley, <i>Ag.</i>	<i>E. Brookfield.</i>	Exp. Station.
Frederic Albert Wheeler, <i>Cl.</i>	<i>Fairfax.</i>	11 S. College.
Arthur Henry Willard, <i>L. S.</i>	<i>Grafton.</i>	12 N. College.
Leon Keeler Wiswell, <i>E.</i>	<i>Hyde Park.</i>	5 N. College.

SOPHOMORE CLASS.

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Egbert Jackman Armstrong, <i>Cl.</i>	<i>Castleton.</i>	6 S. College.
John Davis Batchelder, <i>L. S.</i>	<i>Faribault, Minn.</i>	2 Colchester Ave.
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Daniel Baldwin Lucia, <i>E.</i>	Montpelier.	8 S. College.
Albert James Mackay, <i>Sp.</i>	Peacham.	243 Colchester Ave.
Lawrence Sprague Miller, <i>E.</i>	Fort Monroe, Va.	Mansfield Ave.
Inez Eugenia Moody, <i>L. S.</i>	Waterbury.	35 Colchester Ave.
Charles Herrick Mower, <i>L. S.</i>	Burlington.	328 Pearl St.
William John Pollard, <i>Cl.</i>	Peacham.	16 N. College.
James Martin Puffer, <i>L. S.</i>	Richford.	Converse Court.
Ellen Ruth Read, <i>L. S.</i>	Burlington.	132 Colchester Ave.
Frederick Albert Richardson, <i>Cl.</i>	Burlington.	52 Williams St.
Lillian Agnes Scott, <i>L. S.</i>	Burlington.	70 N. Union St.
Robert Kilburn Severson, <i>Cl.</i>	Burlington.	288 Main St.
Harry Whiting Shaw, <i>Sp.</i>	Brattleboro.	144 College St.
Edward Gleason Spaulding, <i>Ch.</i>	Burlington.	179 Winooski Ave.
George Keith Sprague, <i>E.</i>	Brookfield.	2 Colchester Ave.
Edson Murray Stevens, <i>E.</i>	Eden Mills.	10 N. College.
Charles Edward Stevens, <i>Ag.</i>	Jonesville.	Exp. Farm.
Edward Dinwoodie Strickland, <i>Cl.</i>	Buffalo, N. Y.	8 S. College.
William Stuart, <i>Ag.</i>	Burlington.	Exp. Station.
Frank Talcott, <i>Ag.</i>	Williston.	Exp. Station.
Abel Blodgett Tracy, <i>E.</i>	Randolph.	43 N. Union St.
Martin Samuel Vilas, <i>Cl.</i>	Winooski.	
Edward Myron Wheeler, <i>Cl.</i>	Burlington.	335 S. Union St.
Bessie Dow Wright, <i>Cl.</i>	Burlington.	81 Adams St.

NAMES.	RESIDENCE.	ROOMS.
Fred Spencer Wright, <i>Cl.</i>	<i>Barton Landing.</i>	16 N. College.
John Findlay Young, <i>E.</i>	<i>West Glover.</i>	Janitor's House.

FRESHMAN CLASS.

Marion Shaler Allen, <i>Cl.</i>	<i>Brooklyn, N. Y.</i>	471 Main St.
Bert Melvin Allen, <i>Ag.</i>	<i>Springfield.</i>	Exp. Station.
Karl Augustus Andr��n, <i>E.</i>	<i>Beverly, Mass.</i>	Mansfield Ave.
Clayton Gerald Andrews, <i>Cl.</i>	<i>Richmond.</i>	18 S. College.
Frances Atkinson, <i>L. S.</i>	<i>Newbury.</i>	81 Loomis St.
Victor Carthredge Bates, <i>Ag.</i>	<i>Springfield.</i>	Exp. Station.
Guy Howard Bemis, <i>Ag.</i>	<i>Plainfield.</i>	Exp. Station.
Wells Eugene Bennett, <i>E.</i>	<i>La Crosse, Wis.</i>	148 Colchester Av.
Walter Josephus Bigelow, <i>Ch.</i>	<i>Stowe.</i>	7 N. College.
John Henry Blodgett, <i>Ch.</i>	<i>Grafton.</i>	7 N. College.
John Perkins Brigham, <i>Ch.</i>	<i>Bakersfield.</i>	243 Colchester Ave.
Lucy Florence Burdick, <i>Cl.</i>	<i>Winooski.</i>	72 Main St., Winooski.
George Phillips Chase, <i>L. S.</i>	<i>Washington, D. C.</i>	8 N. College.
William Joseph Cotter, <i>Ag.</i>	<i>Florence.</i>	Exp. Station.
Wilfred Farr Daggett, <i>Cl.</i>	<i>Bristol.</i>	131 N. Union St.
George Hiram Dalrymple, <i>L. S.</i>	<i>Vergennes.</i>	415 Pearl St.
Earle Russell Davis, <i>Cl.</i>	<i>Waits River.</i>	7 N. College.
Hugh Davis, <i>E.</i>	<i>Rutland.</i>	176 College St.
Frederick Barnum Deberville, <i>Cl.</i>	<i>Hinesburgh.</i>	Ethan Block.
Carroll Warren Doten, <i>Ch.</i>	<i>Vergennes.</i>	415 Pearl St.
Fannie Eastman, <i>Cl.</i>	<i>Bradford.</i>	35 Colchester Ave.
Walter Fagan, <i>Ag.</i>	<i>Proctorsville.</i>	Exp. Station.
William Watkins Griffiths, <i>Ag.</i>	<i>Rutland.</i>	Exp. Station.
Elida Hanson, <i>L. S.</i>	<i>Burlington.</i>	Shellburne St.
Fred Thornburn Hatch, <i>E.</i>	<i>Burlington.</i>	140 Colchester Ave.
George Griswold Hensdale, <i>Ag.</i>	<i>St. George.</i>	Exp. Station.

NAMES.	RESIDENCE.	ROOMS.
Bert Hodge Hill, <i>Cl.</i>	<i>Bristol.</i>	131 N. Union.
Jean Hannibal Holden, <i>E.</i>	<i>Burlington.</i>	387 S. Union St.
Theodore Eli Hopkins, <i>Cl.</i>	<i>Toledo, O.</i>	High School Building.
Leigh Hunt, <i>E.</i>	<i>Brooksville.</i>	80 Colchester Ave.
Merrill Marquand Hutchinson, <i>Cl.</i>	<i>Burlington.</i>	178 S. Prospect St.
Grace Agnes Johnson, <i>Cl.</i>	<i>Burlington.</i>	292 North St.
Eva Addie Jones, <i>Cl.</i>	<i>Rurlington.</i>	North Avenue.
Myra Keeler, <i>L. S.</i>	<i>Hyde Park.</i>	489 Main St.
Walter Orin Lane, <i>E.</i>	<i>Burlington.</i>	192 S. Union St.
Alverne Percy Lowell, <i>L. S.</i>	<i>Burlington.</i>	49 Mansfield Ave.
William Lawrence Marshall, <i>L.S.</i>	<i>Brooklyn, N. Y.</i>	18 S. College.
Edward Arthur Maynard, <i>Cl.</i>	<i>Burlington.</i>	92 St. Paul St.
Harold Russell Morse, <i>Sp.</i>	<i>Burlington.</i>	133 S. Prospect St.
William Henry Newton, <i>Ag.</i>	<i>Fort Edward, N. Y.</i>	Exp. Station.
Charles Nott, <i>Cl.</i>	<i>Burlington.</i>	163 Bank St.
George Herbert Parker, <i>E.</i>	<i>Proctorsville.</i>	Exp. Station.
Edward Clifford Peets, <i>Ag.</i>	<i>Proctorsville.</i>	Exp. Station.
George Peterson, <i>Ch.</i>	<i>Burlington.</i>	186 Pine St.
Halsey Poronto, <i>Sp.</i>	<i>Rutland.</i>	18 Lafayette Place.
John Frederick Pratt, <i>E.</i>	<i>Rutland.</i>	176 College St.
George Clark Pratt, <i>L. S.</i>	<i>Plainfield.</i>	5 N. College.
Edward Gove Randall, <i>Cl.</i>	<i>Poultney.</i>	20 S. College.
Charles Marshall Rising, <i>Ag.</i>	<i>W. Rupert.</i>	Exp. Station.
Denzel French Robinson, <i>Ag.</i>	<i>Pawlet.</i>	Exp. Station.
Philip James Ross, <i>Cl.</i>	<i>Franklin Falls, N. H.</i>	457 Main St.
Stewart Leroy Samson, <i>L. S.</i>	<i>St. Albans.</i>	160 Pine St.
Leslie Manchester Saunders, <i>L. S.</i>	<i>Dickinson Ct., N. Y.</i>	80 Col'h Ave.
Thomas Cree Seagur, <i>Ag.</i>	<i>Brandon.</i>	Exp. Station.
Arthur Eldridge Sears, <i>Ch.</i>	<i>Northampton, Mass.</i>	37 Church St.
Frederick Thompson Sharp, <i>Cl.</i>	<i>E. Craftsbury.</i>	14 S. College.

NAMES.	RESIDENCE.	ROOMS.
Annie Laurie Sherburne, <i>Cl.</i>	<i>N. Pomfret.</i>	2 Colchester Ave.
Harry Clyde Shurtleff, <i>L. S.</i>	<i>Montpelier.</i>	18 Lafayette Place.
William Henry Small, <i>Ag.</i>	<i>Morrisville.</i>	Exp. Station.
Oscar Follett Stearns, <i>Ag.</i>	<i>Windham.</i>	Exp. Station.
Arthur Pierce Stockwell, <i>Ag.</i>	<i>Springfield. Mass.</i>	20 Clarke St.
George Zadock Thompson, <i>E.</i>	<i>Woodstock.</i>	12 S. College.
Andrew Durkee Ufford, <i>Ag.</i>	<i>Fairfax.</i>	Exp. Station.
Harry Abel Way, <i>L. S.</i>	<i>Burlington.</i>	49 Mansfield Ave.
Norman Brown Webber, <i>Ag.</i>	<i>Thetford.</i>	Exp. Station.
Almon Cassius Wheeler, <i>Cl.</i>	<i>S. Burlington.</i>	Middle College.
Henry Otis Whitney, <i>Ag.</i>	<i>Williston.</i>	Exp. Station.
Grace Lovantia Wilcox, <i>L. S.</i>	<i>Springfield.</i>	35 Colchester Ave.
John Jay Wilson, <i>Cl.</i>	<i>Bethel.</i>	4 N. College.
Rollin Nathaniel Woodward, <i>E.</i>	<i>Johnson.</i>	10 N. College.

SPECIAL STUDENTS IN MODERN LANGUAGES.

Bertha Lee Hawes.	<i>Burlington.</i>	16 S. Winooski Ave.
Mabel Cary Hawes,	<i>Burlington.</i>	16 S. Winooski Ave.
Cora Mary Herrick,	<i>Burlington.</i>	71 S. Willard St.

SPECIAL STUDENTS IN HISTORY.

Cornelia Frances Marsh,	<i>Brandon.</i>	2 Colchester Ave.
Clara Corey Votey,	<i>S. Windham.</i>	90 N. Prospect St.

SPECIAL STUDENT IN HISTORY, MATHEMATICS AND BOTANY.

Phebe M. Towle,	<i>Enosburgh Falls.</i>	2 Colchester Av.
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GENERAL STATEMENT.

Instruction is given in the UNIVERSITY in

I. The Classical Department, which is the usual Collegiate course in the Languages, ancient and modern, Mathematics, Physical Science, Mental, Moral and Political Philosophy, Rhetoric, Literature and History ; leading to the degrees of Bachelor of Arts and Bachelor of Philosophy.

II. The Studies required (1.) by the Morrill Act of 1862, which provides that instruction be given not only in "classical and other scientific studies," but especially in "branches of learning relating to Agriculture and the Mechanic Arts ;" and (2.) by the Endowment Act of 1890, which provides for instruction in "Agriculture, the Mechanic Arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life."

These Studies are as follows :

1. Civil and Sanitary Engineering,
2. Electrical Engineering,
3. Mechanical Engineering,
4. Theoretical and Applied Chemistry,
5. Agriculture.

COURSES OF STUDY.**GREEK.**

- I. 1. Lysias.** Reading, five or six orations, elementary lectures on Athenian Government.
- 2. Anacreontics.**
- 3. Plato,** Apology and Crito, with collateral reading.
- 4. Homer,** Odyssey, four or five books.
- 5. Prose Composition.** Exercises based to some extent upon the authors read.

Required, Freshman year, four hours.

- II. 1. Euripides, Medea;** introduction to study of the Greek Drama.
- 2. Thucydides,** one book. Collateral reading.
- 3. Lectures** on the Monuments of the Acropolis.
- 4. Sophocles, Antigone.** Lectures on Greek dramatic representation.
- 5. Prose Composition.**

Elective, Sophomore year, three hours.

[Candidates for Sophomore Honors are required to read in addition one play, and specified portions of Homer and Demosthenes.]

- III. 1. Demosthenes, On the Crown,** with some introductory study of Aeschines's oration against Ctesiphon.
- 2. Lycurgus, Against Leocrates,** with study of the administration of Lycurgus at Athens.
- 3. Drama.** Three plays. Lectures. Theses.

Elective, Junior and Senior years, three hours.

In alternate years course III will be considerably changed by the introduction of some study of Plato or of work in Archaeology, in order that a student who wishes to elect it for two years may do so with profit.

LATIN.

- I. 1. Livy, books xxi and xxii, with history of the second Punic war, and review of grammar.
 2. Tacitus, Life of Agricola, and Germania. Latin synonyms.
 3. Horace, Odes and Epodes.
 4. Prose Composition.

Required, Freshman year, four hours.

- II. 1. Cicero, Tusculan Disputations book i, or De Officiis.
 Roman Archaeology.
 2. Plautus. }
 3. Terence. } with history of the Roman stage.
 4. Horace, Epistles.
 5. Catullus.

Elective, Sophomore year, three hours.

- III. 1. Quintilian, books x and xii, with outline of Latin Literature.
 2. Horace, Satires.
 3. Juvenal.
 4. Persius.
 5. Early Latin.
 6. Latin Hymns.

Elective, Junior and Senior years, three hours.

Course III will be considerably changed from time to time by the study of Pliny's or Cicero's Letters, Tacitus (Histories) and Lucretius. This will enable students to elect it profitably in two successive years.

FRENCH.

- I. 1. Grammar. Fasnacht, Synthetic French Grammar; Blouet, Class-Book of French Composition, Part I.; Wendling, Le Verbe.

2. Fénelon, Les Aventures de Télémaque.

3. Racine, Athalie, Mithridate.

4. Corneille, Le Cid.

*French I or German I, required, Sophomore year,
three hours.*

II. 1. **Syntax.** Lectures (in French), based on the grammars of Mätzner, Plötz and Girault-Duvivier. Blouet, French Composition, Part II.

2. Demogeot, Histoire de la Littérature française (IVe Période pp. 353-664). Lectures on earlier periods of the literature.

3. Hugo and the Romantic School. Lectures.

4. Chateaubriand, Atala.

5. De Musset, Poésies Nouvelles.

6. Hugo, Ruy Blas, Hernani.

Elective, Junior and Senior years, three hours.

GERMAN.

I. 1. **Grammar.** Joynes-Meissner, German Grammar, Otto's materials for translating English into German.

2. German Reader, Whitney's.

3. Goethe, Hermann und Dorothea.

4. Schiller, Wilhelm Tell.

*German I or French I, required, Sophomore year,
three hours.*

II. 1. **Syntax.** Lectures (in German). Exercises in conversation based on Grimm's Märchen.

2. Scherer, Geschichte der deutschen Litteratur,—parts selected.

3. Goethe, Iphigenie auf Tauris; Faust, with introductory lectures.

4. Lessing, Laokoon.

Elective, Junior and Senior years, three hours.

ENGLISH.

I **Rhetoric and Composition.** Elementary work; Text-book, Hill's Principles of Rhetoric.

Required, Freshman year, one hour.

II. **Composition and Style.** Text-books, Genung's Practical Rhetoric, and Rhetorical Analysis.

Required, Sophomore year, two hours.

III. **English Literature.** Historical lectures; recitations and brief essays.

Required, Senior year, two hours.

IV. **English Literature.** Studies in different periods. Collateral reading and essays.

Elective, Senior year, two hours.

Members of the Freshman and Sophomore classes are required to give two selected declamations during the year. Original declamations are required of Juniors and Seniors, and during the latter part of Junior year extemporaneous debates are held.

PHILOSOPHY.

I. **Logic,** deductive and inductive. Hill's Jevons' The Elements of Logic.

Required, Junior year, three hours.

II. **History of Philosophy,** ancient and modern. Lectures and text-books.

Ferrier's Lectures on Greek Philosophy.

Schwegler's Hand-book of the History of Philosophy.
Elective, Jnnior year, two hours.

- III. 1. **Psychology**, including the study of physiological conditions of mental states. Lectures and Text-book, Ladd's Outlines of Physiological Psychology.
2. **Ethics**, theoretical. Text-book, Janet's Theory of Morals.
3. **Theism**, or evidence of the being of God. Text-book, Flint's Lectures on Theism.
- Required, Senior year, three hours.*
- IV. **Metaphysics. The Critical Philosophy.** Lectures and text-book. Watson's Philosophy of Kant in Extracts.
Elective, Senior year, two hours.
- V. **Fine Art. Philosophy of Art.**
Lectures and Text-book. J. Torrey's A Theory of Fine Art.
Elective, second half of Senior year, two hours.

POLITICAL SCIENCE.

- I. **Elementary Political Economy**, with Laughlin's Mill's, and Francis A. Walker's Political Economy, as text-books.
Required, second half of Junior year, three hours.
- II. 1. **Constitutional History**, and Constitutional Law ; the text-book in U. S. Constitution is Cooley. Lectures, and papers on assigned topics.
2. **International Law.** Lectures.
3. **Political Economy**, applied to open questions by lectures and discussions.
4. **History of Political Economy.**
5. **Sociology.** Lectures.
- Required, Senior year, two hours.*

HISTORY.

- I. General History.** Lectures and recitations; Text-book, Fisher's Outlines.

Required, Sophomore year, four hours.

- II. The French Revolution.** A study of its causes and results. Topical investigation and collateral reading.

Elective, Junior year, three hours.

- III. English Institutions.**

- IV. The Reformation.**

- V. The Papacy and the Empire.**

} Lectures. Topical investigations.

Elective, Senior year, three hours.

[Either course III, IV or V may be taken at the option of the class.]

A one hour elective course in the History of Religions has been organized during the present year, which is open to all students, but is especially recommended to the upper classes. Persons, not members of the University, who are interested in such study will be admitted to this course on the same conditions as students.

MATHEMATICS.

- I. 1. Geometry, Solid and Spherical;** with weekly tests and original propositions. Chauvenet's Geometry.

- 2. Algebra, advanced;** Binomial and Exponential Theorems, Theory of Equations. Well's University Algebra.

- 3. Trigonometry, Plane and Spherical.** Newcomb's Trigonometry.

Required, Freshman year, five hours.

- II. 1. Trigonometry, Spherical,** with applications to the simpler problems in Practical Astronomy and Navigation. Newcomb's Trigonometry and Young's General Astronomy.

2. **Analytical Geometry**, including Conics, with lectures on the higher plane curves. Text-book and lectures.
Elective, Sophomore year, three hours.
Required of all students in Engineering Department.
- III. 1. **Higher Synthetic Geometry**, analytic method, method of loci, of symmetry, of reciprocal radii. Lectures.
 2. **Modern Projective Geometry**. Cremona's Projective Geometry.
Elective, Junior and Senior years, three hours.
- IV. **Differential and Integral Calculus**. Text-book to be announced.
Required of all students in Engineering Department.
 [Courses III and IV will be given in alternate years to students in the Classical Department.]

The Honor Examinations for the Sophomore Year will be on the geometrical and algebraical study of complex numbers, with De Moivre's Theorem and the Theory of Equations.

A candidate for Senior Honors may choose his subject from studies in Analytical Geometry, Modern Geometry, Higher Algebra, Differential Equations, Mathematical Physics.

PHYSICS.

- I. 1. **General properties of matter.**
 2. **Dynamics.**
 3. **Acoustics.**
 4. **Geometrical optics.**
Required, first half of Junior year, three hours.
- II. 1. **Heat,**
 2. **Electricity,** } Practical applications.
Elective, second half of Junior year, three hours.

NATURAL SCIENCE.

- I. 1. General Biology.** Lectures ; Laboratory work. *
Elective, first half of Junior year, two hours.
- 2. Biology.** Laboratory work, * with occasional lectures.
Elective, second half of Junior year, four hours.
- 3. Physiology.** Recitations and lectures. Martin's Human Body.
Required, second half of Junior year, three hours.
- II. Biology.** Advanced laboratory work.
Elective, Senior year, four to twelve hours.
- III. Hygiene.** Lectures.
Required, Freshman year, one hour.
- IV. Anthropology.** Recitations and lectures. Taylor's Anthropology.
Elective, first half of Senior year, two hours.
- V. Mineralogy,** Descriptive and Determinative. Dana's Manual of Mineralogy.
Elective, first half of Senior year, two hours.
- VI. Geology.** Recitations and lectures. Le Conte's Elements.
Elective, second half of Senior year, three hours.

*In laboratory-work two hours counts as one hour of recitation.

Candidates for honors may select from some department of either Biology or Geology a subject for special and original investigation, which must be carried on under the direction of the Instructor ; the results must be presented at the close of Senior year in the form of a thesis.

CIVIL ENGINEERING.

Drawing.

- I. 1. Elementary Projections.**
Five hours, until December.
- 2. Descriptive Geometry.**
Five hours, December until April.

3. Shades and Shadows.

Five hours, April until June.

4. Pen Topography and Lettering.

Eight hours, second half year.

II. 1. Linear Perspective.

Four hours, until December.

2. Shading and Coloring.

Four hours, December until February.

3. Isometrical Projections.

Four hours, February until April.

4. Detail Working Drawings of Machinery.

Five hours, first half year.

5. Construction of Gear Teeth.

Four hours, second half year.

6. Spherical Projections.

Four hours, April until June.

III. 1. Mapping Surveys.

Ten hours, first half year.

2. Detail and Assembly Working Drawings of entire Machines.

Four hours, first half year.

3. Stone Cutting.

Two hours, second half year.

4. Structural Drawing.

Six hours, second half year.

IV. 1. Problems in Designs.

Four hours, second half year.

2. Detail Drawing and Design.

Four hours, first half year.

Surveying.

- I.** Chain and Compass Surveying. Levelling. Recitations and Field Work.
Eight hours, second half year.
- II.** 1. Transit Surveying. Recitations, Field Work and Plotting.
Six hours, first half year.
2. Transit, Solar Compass, Stadia and Plane Table in Topographical Surveying. Recitations, Field Work and Plotting.
Six hours, second half year.
- III.** Geodetic Surveying. Field Work.
Four Weeks in the Summer Vacation.
- IV.** Railroad Surveying. Recitations and Field Work.
Six hours, second half year.
- V.** Higher Surveying and Practical Astronomy. Lectures. Recitations and Field Work.
Six hours, second half year.

Mechanics.

- I.** 1. Forces and Motion. Recitations.
Five hours, until December.
2. Stresses in Roof and Bridge Trusses. Recitations.
Five hours, from December until April.
3. Strength of Materials; Theory of Flexure and Torsion. Recitations.
Five hours, April to June.
- II.** Hydrostatics and Hydraulics. Recitations.
Four hours until April.
- III.** Graphical Statics; Study of Arches, Domes and Retaining Walls.
Five hours, first half year.

- IV. Advanced Bridge Work. Lectures and Recitations.**
Three hours, second half year.

Engineering Construction.

- I. Materials, their properties, preparation and use.**
1. Limes, Cements, Mortars, Brick and stone. Lectures.
Two hours, first half year.
 2. Timber, Iron and Steel. Lectures.
Two hours, second half year.
- II. 1. Foundations of Structures on Land and in Water.**
Lectures.
Two hours, until December.
2. Construction of Roads and Pavements; Railway Construction and Equipment. Lectures.
Two hours, December until second half year.
 3. River Improvements; Harbor and Canal Construction.
Lectures.
Two hours, second half year.
- III. Contracts and Specifications. Lectures.**
Two hours, first half year.

Sanitary Engineering.

- I. Water Supply, Sewerage, general principles of Plumbing and Heating, with details of construction. Lectures.**
Three hours, second half year.

MECHANICAL ENGINEERING.

- I. 1. Elements of Mechanism.**
Two hours, first half year.
2. Gearing and Machine Tools.
Three hours, second half year.

- II.** 1. Valve Gears and Thermodynamics.
Three hours, first half year.
2. Thermodynamics ; Boilers, Pumps and Injectors.
Three hours, second half year.
3. Laboratory Work; Engine and Boiler Tests.
Two hours, second half year.
- III.** 1. Dynamics of Machinery.
Three hours, first half year.
2. Locomotive and Marine Engineering.
Three hours, second half year.
3. Machine Design.
Two hours, first half year.
4. Laboratory Work ; Pumps and Power Tests, and Strength of Materials.
Two hours, throughout the year.

Shop-Work.

- I.** 1. Carpentry.
Two hours, first half year.
2. Wood Turning and Pattern Making.
Two hours, second half year.
- II.** 1. Forging of Iron and Steel.
Two hours, first half year.
2. Chopping, Filing and Scraping.
Two hours, second half year.
- III.** 1. Machine Shop Work.
Three hours, entire year, except last four weeks.
2. Moulding and Founding.
Three hours, last four weeks of year.

ELECTRICAL ENGINEERING.

- I.** **Physics and Physical Laboratory.**
 Two hours, second half year.
- II.** 1. **Theory of Potentials.**
 Two hours, first half year.
 2. **Electrical Laboratory.**
 Two hours, first half year.
- III.** 1. **Electrical Measuring Instruments.**
 Two hours, second half year.
 2. **Electrical Laboratory.**
 Two hours, second half year.
- IV.** 1. **Technical Applications of Electricity.**
 Three hours, first half year.
 2. **Electrical Laboratory.**
 Two hours, first half year.
- V.** 1. **Construction of Dynamo-Electric Machinery and Trans-**
 mission of Energy.
 Five hours, second half year.
 2. **Electrical Laboratory.**
 Three hours, second half year.

CHEMISTRY.

- I.** 1. **General Chemistry. Lectures.**
 Three hours, first half year.
 2. **Laboratory Work. Elementary experiments and elemen-**
 tary qualitative analysis.
 Six to eight hours, second half year.
 Elective for Sophomores in the Classical Department,
 four hours.

- II. Qualitative Analysis, advanced course.** Laboratory work, with occasional class meetings, and recitations.
Ten to fifteen hours, one half year.
- III. Quantitative Analysis.** Laboratory work, with class meetings for discussion of methods.
Fifteen hours, one year or longer.
- IV. Stoichiometry.** Lectures.
Two hours, one half year.
- V. Industrial Chemistry.**
- 1. Assaying.** Ores, furnace, products, etc.
One half year. (Hours of work to be assigned by the Instructor.)
 - 2. Lectures.** Inspection of constructional plans of works, with occasional excursions to manufacturing establishments, when such may be made conveniently.
One half year. (Hours of work to be assigned by the Instructor.)
- VI. History of Chemistry.** Lectures.
One hour, about eight weeks.
- VII. Organic Chemistry.**
- 1. Lectures.** Theory and Synthesis of Carbon Compounds.
Two hours, one year.
 - 2. Laboratory Work.** Preparations of compounds, analyses, etc.

[Course VII is given in alternate years.]

Practical use of the Spectroscope is offered to students who are qualified for that order of work, at some convenient time during the four years.

Courses under the headings of Engineering and Chemistry are required in the Engineering and Chemical Departments.

CLASSICAL DEPARTMENT.

FACULTY.

MATTHEW H. BUCKHAM, D. D., *Political and Social Philosophy.*

HENRY A. P. TORREY, A. M., *Intellectual and Moral Philosophy.*

GEORGE HENRY PERKINS, Ph. D., *Zoology, Botany and Geology.*

JOHN ELLSWORTH GOODRICH, A. M., *Latin.*

SAMUEL FRANKLIN EMERSON, Ph. D., *History.*

NATHAN FREDERICK MERRILL, Ph. D., *Chemistry.*

ARCHIBALD LAMONT DANIELS, Sc. D., *Mathematics and Physics.*

JAMES RIGNALL WHEELER, Ph. D., *Greek.*

LEWIS JUREY HUFF, *Modern Languages.*

JOSEPH KNOWLTON CHICKERING, A. M., *Rhetoric and English Literature.*

FREDERICK E. DEWHURST, A. B., *Political Economy.*

FREDERICK MERRITT CORSE, A. B., *Mathematics.*

CAPT. HERBERT SIDNEY FOSTER, *Military Science and Tactics.*

ELECTIVE AND REQUIRED STUDIES.

I. Candidates for the degree of A. B., after pursuing a required course of Greek, Latin, Mathematics, and English through the Freshman year, are allowed to elect a certain number of their studies, the number increasing in the later years of the College course. Certain studies are still required of all alike through the course, and each student is required to take such a number of electives as will bring his total work up to a prescribed number of recitation or lecture hours per week. The abuse to which a system of perfectly free electives is liable is avoided by the requirement of a course which secures a certain degree of completeness and symmetry of discipline, while the number of electives permitted gives room for the development of special

talents and the following out of individual predilections. The electives are offered in such a way as to permit extended study of any subject or group of subjects of which the student may wish to make a specialty. For example, Greek, Latin, and Mathematics may be pursued through most of the time during the four years; French and German for three years; Physical Science, Literature, History, and the Social, Intellectual and Moral Sciences, from two to three years.

The required subjects beginning with the Sophomore year, are French or German, History, English Literature, Physics, Physiology, Logic, Political Economy, Psychology, Moral Science, Evidences of Religion. The time given to each subject is indicated in the description of courses and schedule of studies.

The electives embrace advanced studies in Greek and Latin; advanced French and German, including studies in Comparative Literature; the higher Mathematics, including Calculus and the New Geometry; History. Political and Social Science; English and American literature; Chemistry, theoretical and applied, with Laboratory work; Geology; Botany; Zoology; Biology; Anthropology; Metaphysics; the History of Philosophy; the theory of Fine Art.

Other subjects, in which classes are likely to be small, such as Anglo-Saxon, Italian, Hebrew, will be offered occasionally, at such intervals as to give all students an opportunity to take such of them as may be desired at some time during their college course.

II. Candidates for the degree of Ph. B. will have the same courses required and the same electives as candidates for the degree of A. B., except that omitting Greek they will begin the study of French and German one year earlier and will select in the second year from both Sophomore and Junior electives.

III. Persons who may desire to take a short academic course preparatory to the study of medicine may take the first two years of the course leading to the degree of Ph. B., with any of the elec-

tives of the entire department for which they have the requisite preparation.

IV. Students in any of the other departments may, by special permission of the Faculty, take a limited number of electives from the Engineering and Chemical departments.

V. It is assumed that the choice of electives will be made by the student with reference to some clear, deliberate purpose, and as the result of consultation with members of the Faculty. In all cases the natural sequence of studies must be observed. The Faculty reserve the right to exclude a student from any course to which his previous studies have not properly led up.

The studies pursued and taught in the Classical Department are divided into seven sections :

1. Languages.
2. Moral and Intellectual Philosophy.
3. Social and Political Science.
4. History.
5. Rhetoric and English Literature.
6. Mathematics.
7. Natural Science.

Electives in Italics.

FRESHMAN YEAR.

FIRST HALF-YEAR.

Greek : Lysias and Anacreontics, Plato's Apology, Prose Composition, four hours. Professor WHEELER.

Latin : Livy, Tacitus begun, four hours. Professor GOODRICH.

Mathematics : Geometry and Algebra, five hours. MR. CORSE.

English : Rhetoric and Composition, one hour.

Professor CHICKERING.

Hygiene : One hour.

Professor PERKINS.

SECOND HALF-YEAR.

Greek : Plato's Crito, Odyssey, Prose Composition, four hours.

Professor WHEELER.

Latin : Tacitus continued, Horace (Odes), four hours.

Professor GOODRICH.

Mathematics : Algebra and Plane Trigonometry, five hours.

MR. CORSE.

English : Rhetoric and Composition, one hour.

Professor CHICKERING.

Hygiene : One hour.

Professor PERKINS.

SOPHOMORE YEAR.

FIRST HALF-YEAR.

French : Composition, Fénelon, three hours. Professor HUFF.

German : Composition, Andersen's Märchen, three hours.

Professor HUFF.

History : Ancient and Medieval, four hours. Professor EMERSON.

English : Rhetoric and Essays, two hours. Professor CHICKERING.

Mathematics : Trigonometry and Astronomy, three hours.

Professor DANIELS.

Greek : *Medea of Euripides, Thucydides, Prose Composition,*
three hours.

Professor WHEELER.

Latin : *Cicero, Plautus, three hours.*

Professor GOODRICH.

Chemistry : *Lectures and Text-book, three hours.* Professor MERRILL.

SECOND HALF-YEAR.

History : Medieval and Modern, four hours. Professor EMERSON.

German : Composition, Heine, Goethe, three hours. Professor HUFF.

- French :** Composition, Racine, three hours. Professor HUFF.
English : Literature, Essays, two hours. Professor CHICKERING.
Mathematics : *Analytical Geometry*, three hours. Professor DANIELS.
Greek : *Lectures on the Monuments of the Acropolis, Antigone of Sophocles, Prose Composition*, three hours. Professor WHEELER.
Latin : *Terence, Horace (Epistles,) Catullus*, three hours.
 Professor GOODRICH.
Chemistry : *Laboratory work*, four hours. Professor MERRILL.

JUNIOR YEAR.

FIRST HALF-YEAR.

- Logic :** Deductive and Inductive, three hours. Professor TORREY.
Physies : Lectures and Text-book, three hours. Professor DANIELS.
English Literature : Two hours. Professor CHICKERING.
History of Philosophy : Two hours. Professor TORREY.
History : *French Political Institutions*, three hours.
 Professor EMERSON.
Greek : *Orators or Plato*, three hours. Professor WHEELER.
Latin : *Horace (Satires), Juvenal, Persius*, three hours.
 Professor GOODRICH.
German : *Composition, Goethe*, three hours. Professor HUFF.
French : *Poets of the Romantic School*, three hours. Professor HUFF.
Mathematics : *Higher Algebra, Modern Geometry, or Calculus*, three hours. Professor DANIELS.
Biology : *Lectures and Laboratory*, three hours. Professor PERKINS.

SECOND HALF-YEAR.

- Political Economy :** Text-book and Lectures, two hours.
 Mr. DEWHURST.
Physiology : Text-book and Lectures, three hours. Professor PERKINS.
English Literature : Two hours. Professor CHICKERING.

<i>History of Philosophy: Two hours.</i>	Professor TORREY.
<i>History: Political Institutions, three hours.</i>	Professor EMERSON.
<i>Greek: Drama, or Lyric and Bucolic Poetry, Archæological Work, two hours.</i>	Professor WHEELER.
<i>Latin: Quintilian, Early Latin, Latin Hymns, three hours.</i>	Professor GOODRICH.
<i>German: Lessing, three hours.</i>	Professor HUFF.
<i>French: Poets of the Romantic School, three hours.</i>	Professor HUFF.
<i>Mathematics: Higher Algebra, Modern Geometry, or Calculus three hours.</i>	Professor DANIELS.
<i>Biology: Laboratory, two hours.</i>	Professor PERKINS.

SENIOR YEAR.

FIRST HALF-YEAR.

Political Science: Text book and Lectures, two hours.	President BUCKHAM.
Psychology: Lectures, three hours.	Professor TORREY.
Oratory: One hour.	Professor CHICKERING.
<i>Metaphysics: † The Philosophy of Kant, or History of Philosophy: Text books and Lectures, two hours.</i>	Professor TORREY.
<i>Anthropology: Two hours.</i>	Professor PERKINS.
<i>Mineralogy: Two hours.</i>	Professor PERKINS.
<i>English Literature: Two hours.</i>	Professor CHICKERING.
<i>Anglo-Saxon: Two hours.</i>	Professor CHICKERING.
<i>*Mathematics: † Higher Algebra, etc., three hours.</i>	Professor DANIELS.
<i>*Latin: † Three hours.</i>	Professor GOODRICH.
<i>*Greek: † Three hours.</i>	Professor WHEELER.
<i>*German: † Three hours.</i>	Professor HUFF.

**French : † Three hours.*

Professor HUFF.

**History : † Three hours.*

Professor EMERSON.

**Biology : Laboratory, four hours.*

Professor PERKINS.

SECOND HALF-YEAR.

Political Science : Two hours.

President BUCKHAM.

Moral Science : Text-book, three hours.

Professor TORREY.

Oratory : One hour.

Professor CHICKERING.

Evidences of Religion : Text-book, three hours.

Professor TORREY.

Geology : Three hours.

Professor PERKINS.

Fine Art : Text-book, three hours.

Professor TORREY.

(Other Electives as named above.)

Students entering college without Greek, as candidates for the degree of Bachelor of Philosophy, pursue all the subjects of the Classical Department excepting that language, electing instead more work in modern Languages and Science.

In addition to the prescribed studies students are required to elect such a number of courses as shall bring their work up to a specified number of hours per week. The minimum amount is :

For Sophomores, fourteen hours.

For Juniors, fourteen hours.

For Seniors, twelve hours.

*Continue through the year.

†With Juniors.

DEPARTMENT OF ENGINEERING.

FACULTY.

MATTHEW HENRY BUCKHAM, D. D., President, *Political and Social Philosophy.*

VOLNEY GILES BARBOUR, Ph. B., C. E., *Civil Engineering.*

GEORGE HENRY PERKINS, Ph. D., *Natural History.*

JOSIAH WILLIAM VOTEY, C. E., *Civil Engineering.*

LEWIS JUREY HUFF, *Modern Languages.*

HARRY ASAHIEL STORRS, C. E., *Electrical Engineering.*

ARTHUR W. AYER, B. S., *Mechanical Engineering.*

NATHAN FREDERICK MERRILL, Ph. D., *Chemistry.*

ARCHIBALD LAMONT DANIELS, Sc. D., *Mathematics and Physics.*

JOSEPH KNOWLTON CHICKERING, A. M., *English Language and Literature, and Elocution.*

FREDERICK M. CORSE, A. B., *Mathematics.*

HERBERT SIDNEY FOSTER, Captain 20th Infantry, *Military Tactics.*

CIVIL ENGINEERING.

Instruction is given by means of lectures, recitations, and work in the field and drawing-room. Technical essays are required at frequent intervals on topics connected with the various subjects as they are taken up. Excursions will be made by the classes to engineering works and work-shops for the study of details and methods of construction.

The studies pursued comprise :

Mathematics, including algebra, geometry, plane and spherical trigonometry, analytical geometry, and the elements of differential and integral calculus; *General Chemistry, Botany, Astronomy,*

Physics, Geology, Mineralogy, French, German, Political Economy and English.

Mechanics, including analytical and graphical determination of stresses in the various kinds of roof and bridge trusses, of the thrust and stability of arches and retaining walls, and of the flow of water in pipes and open channels. For the field work in hydraulics the department is equipped with triangular and rectangular wiers, floats and current meters, which are used by the students in determining the flow of streams.

Drawing, embracing general projection drawing, isometric, perspective, and topographical drawing, shading and coloring, spherical projections and map drawing, plans of surveys, ornamentation and lettering, and the detail and working drawings of structures in wood, iron and stone. This work is carried on throughout the entire four years.

Engineering Construction, including the general properties of building material, as stone, cements, mortar, brick, wood and the metals, the construction of foundations in water and on land, and of superstructures and tunnels, of highways and city streets, of railroads, canals, water works, drainage and sewerage works, and the improvements of harbors and rivers. In connection with the study of materials, tests of the strength of cements, wood, stone, iron and steel are made. For this work the department has a 2,000 pound Riehle cement tester, and a 50,000 pound Riehle general testing machine fitted for tensile, compressive or transverse tests, with a Henning & Marshall electric micrometer for measuring elongations.

Surveying, both theory and practice. The theory of instruments, and all the operations of surveying, laying out work, and computing, are explained in detail. The field work is carried on as the weather permits, through the fall and spring of each year. During the vacation between the second and third years the class spends four weeks

in the triangulation and survey of portions of Lake Champlain. Every student is afforded abundant opportunity for becoming familiar, by actual work in the field, with the use and adjustment of the compass, transit, level, plane table, and other like instruments. The classes make surveys of fields, topographical surveys, surveys of rivers and harbors, surveys for roads and railroads, including running in curves, cross-sections, staking out, contouring, topography. Maps and profiles of the work done in the field are made by the students, and the areas of fields, the cuts and fills, and the quantities of earth to be moved in the construction of roads, are computed.

Sanitary engineering, including the subjects of sewerage, sewage disposal, water supply, the plumbing, heating and ventilating of buildings.

Attention is also given to the preparation of *Specifications* and *Contracts*.

In bridge work the theory of stresses, and the details of construction of the various classes of bridges are taken up. Drawings and blue prints of recent constructions from leading bridge companies are used to illustrate modern practice in this work.

The library and reading room are well furnished with engineering literature, the reading room being supplied with many of the American and foreign engineering periodicals.

The special studies of the department may be taken as a graduate course, occupying two years. Young men who are so situated as to be unable to take full work, but who would be glad to receive instruction in special branches, may, by permission of the President and on giving evidence of sufficient preparation, join the classes in those studies, but they cannot be candidates for a degree.

Text-books and books of reference.—Davies's Surveying; Searle's and Henck's Field-books; Johnson's Surveying; Clarke's Geodesy; Haupt's Topography; Wellington's Railway Location; Wright's

Adjustment of Observations; Merriman's Least Squares; Publications of the U. S. Coast and Geodetic Survey; Weisbach's Mechanics of Engineering; Cotterill's Applied Mechanics; Rankine's Civil Engineering; Latham's Sanitary Engineering; Fanning's Water Supply; Merriman's Hydraulics; Smith's Hydraulics; Burr's Elasticity and Resistance of Materials; Thurston's Materials of Engineering.

FRESHMAN YEAR.

FIRST HALF YEAR. *Mathematics*.—Geometry and Algebra, five hours. *Chemistry*.—Lectures, three hours. *Drawing*.—Elementary projections and Descriptive Geometry, five hours. *English*.—Rhetoric and Compositions, one hour. *Hygiene*.—Lectures, one hour.

SECOND HALF YEAR. *Mathematics*.—Trigonometry and Surveying, five hours. *Descriptive Geometry and Shades and Shadows*.—five hours. *Drawing*.—Topography and Lettering, four hours. *Hygiene*.—Lectures, one hour. *English*.—one hour.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Mathematics*.—Analytical Geometry and Calculus, five hours. *Physics*.—three hours. *French or German*.—three hours. *Drawing*.—Shading and Tinting, and Perspectives, two hours. *English*.—one hour. *Surveying*.

SECOND HALF YEAR. *Mathematics*.—Calculus, three hours. *Astronomy*.—two hours. *Physics*.—three hours. *French or German*.—three hours. *English*.—two hours. *Drawing*.—Isometrical Projections and Spherical Projections. *Surveying*.

VACATION.

Summer Class in Higher Surveying, four weeks.

JUNIOR YEAR.

FIRST HALF YEAR. *Mechanics*.—Forces and Motion; Stresses in Bridge and Roof Trusses, five hours. *French or German*.—Technical Reading, two hours. *Drawing*.—Mapping of Surveys, four hours. *Mineralogy*.—two hours. *Engineering Construction*.—Materials of construction, two hours. *English*.—two hours.

SECOND HALF YEAR. *Mechanics*.—Stresses in Bridge and Roof Trusses; Strength of Materials; Theory of Flexure and Tension, five hours. *Engineering Construction*.—Materials of construction, two hours. *Railroad Engineering*.—Lectures and Field Work, three hours. *Geology*.—three hours. *Drawing*.—Stone Cutting, Structural Drawing, one hour. *English*.—two hours.

SENIOR YEAR.

FIRST HALF YEAR. *Mechanics*.—Hydrostatics and Hydraulics, four hours. *Graphical Statics*.—Study of Arches, Domes, and Retaining Walls, five hours. *Contracts and Specifications*.—two hours. *Engineering Construction*.—Foundations, Roads and Pavements, Railroads, two hours. *English*.—one hour. *Drawing*.—Detail Drawing and Designing, two hours.

SECOND HALF YEAR. *Engineering Construction*.—Rivers, Harbors and Canals, two hours. *Sanitary Engineering*.—Water Supply, Sewerage, Plumbing, Heating and Ventilating, three hours. *Mechanics*.—Advanced Bridge Work, three hours. *Mathematics*.—Least Squares, Higher Surveying and Practical Astronomy, three hours. *Theses*.

MECHANICAL ENGINEERING.

The instruction in Mechanical Engineering is intended to furnish the student with such training as will enable him to solve most advantageously the problems which arise in the practice of his profession, namely, those relating to the generation and transmission

of power, and its application to the arts. The fact is recognized that such training cannot be gained in the recitation and lecture rooms alone, and in consequence a considerable portion of the student's time is spent in the drawing-room and workshops, and in the engineering laboratory.

No strictly professional subjects are taken up in the Freshman year, but much time is devoted to mathematics and drawing, these being considered the most important factors in the work of the following years. The Sophomore year is devoted to the more elementary subjects of the profession, the Junior year almost wholly to steam engineering, and the Senior year to machine design and to advanced and special lines of professional work.

Shop Equipment: The carpenter and pattern shop contains, in addition to carpenter's benches, and a full line of tools for manual work, six wood-turning lathes, an eight inch pattern-maker's lathe, circular saw, and scroll saw. The foundry is supplied with a cupola furnace, brass furnace, core-oven and accommodations for six students in moulding. The forge shop contains forges, anvils, a hand drill, and all the hand tools necessary for instruction in this branch. The machine shop is equipped with filing and chipping benches, three engine lathes, a hand lathe, a planer, two upright drills, a grindstone, and emery wheels. A shaper, a milling machine, and a grinding machine will shortly be added.

Power is furnished to the shops by a twenty-five horse power Harris-Corliss engine, and steam, both for heating and power, is supplied by a fifty horse power tubular boiler.

FRESHMAN YEAR.

FIRST HALF YEAR. *Mathematics.*—Algebra and Solid Geometry, five hours. *Chemistry.*—Lectures, three hours. *Drawing.*—Elementary Projections and Descriptive Geometry, five hours. *English.*—Rhetoric and Composition, one hour. *Hygiene.*—Lectures, one hour.

SECOND HALF YEAR. *Mathematics.*—Trigonometry and Surveying, five hours. *Drawing.*—Descriptive Geometry, five hours. *Chemistry.*—Laboratory, three hours. *English.*—one hour. *Hygiene.*—one hour.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Mathematics.*—Analytical Geometry, five hours. *Mechanical Engineering.*—Elementary Mechanism, two hours. *Drawing.*—Details of Machinery, one hour. *Physics.*—Lectures, three hours. *French or German.*—three hours. *English.*—two hours. *Shopwork.*—Carpentry, two hours.

FIRST HALF YEAR. *Mathematics.*—Calculus, three hours. *Mechanical Engineering.*—Mechanism, Gear Teeth and Machine Tools, three hours. *Drawing.*—Details of Machinery, and Construction of Gear Teeth, two hours. *Physics.*—Heat and Electricity, Lectures, three hours. *French or German.*—three hours. *English.*—two hours. *Shopwork.*—Wood-Turning and Pattern Making, two hours.

JUNIOR YEAR.

FIRST HALF YEAR. *Mechanical Engineering.*—Valve Gears and Thermodynamics, three hours. *Mechanics.*—General Statics, Roof and Bridge Trusses, five hours. *Drawing.*—Detail and Assembly Drawing of Machines, two hours. *French or German.*—two hours. *English.*—two hours. *Shopwork.*—Forging, two hours.

SECOND HALF YEAR. *Mechanical Engineering.*—Thermodynamics, Boilers, Pumps and Injectors, three hours. *Mechanics.*—Strength of Materials, five hours. *Drawing.*—Problems in Design, two hours. *English.*—two hours. *Mechanical Engineering Laboratory.*—Engine Tests, two hours. *Shopwork,* Forging, Chipping and Filing, two hours.

SENIOR YEAR.

FIRST HALF YEAR. *Mechanical Engineering.*—Dynamics of Machines, three hours. *Machine Design.*—Lectures and Drawing Room, two hours. *English.*—two hours. *Mechanical Engineering Laboratory.*—Engine and Boiler Tests, two hours. *Shopwork.*—Machine Shop, three hours.

SECOND HALF YEAR. *Mechanical Engineering.*—Locomotive and Marine Engineering, three hours. *Mechanical Engineering Laboratory.*—Pump and Power Tests, and Strength of Materials, two hours. *English.*—two hours. *Shopwork.*—Machine Shop, Moulding and Founding, three hours. *Theses.*

ELECTRICAL ENGINEERING.

The work in electrical engineering is designed to fit students for practical electrical work. The leading subjects of study are Mathematics, Mechanical Engineering, and Electricity, but some work in Literature, History and Modern Languages will also be required.

The technical studies are of two kinds, theoretical and practical or experimental. Preparatory to these, during the earlier years the student receives training in Mathematics, Chemistry, and Physics. Draughting work is pursued during the first three years, by a progressive series of exercises leading to problems in machine designing, and including the making of working drawings, blue prints, etc. During the latter part of Sophomore year and throughout Junior and Senior years the work is conducted in the physical, electrical and engineering laboratories, and is intended to give the student scientific training. The study of mechanics, with appropriate laboratory work, is taken up in Junior year and is continued during Senior year in special lines. Steam, also, and Mechanical Engineering are important subjects of study in the Electrical Engineering work. In

general, a student follows nearly the same line of study in Electrical as in Mechanical Engineering, except that a part of the shop work and mechanical laboratory work is omitted to give place to special subjects in Electrical Engineering. These subjects which begin with Junior year include the theory of Potential, Electrical Measuring Instruments, Dynamo-Electric Machinery, etc., with laboratory work such as comparative tests of batteries, efficiency tests of dynamos, etc.

Original investigation will be permitted when deemed beneficial to the student, chiefly as an aid in the preparation of the graduating thesis. Technical essays involving a study of different authorities and of the latest published articles are frequently prepared by each student and presented for discussion in the class room. The library is well supplied with electrical and other scientific papers, and with standard works in electricity.

The electrical equipment includes galvanometers of recent design for accurate work, sets of standard resistance coils, a Wheatstone bridge, Thomson's electrical balance of wide range, also his graded voltmeter and electrometer, besides much apparatus suitable for the use of the less experienced students. A dynamo, specially designed, and provided with extra armature and field coils, enables the student to learn by actual tests the relative merits of different types of "direct current" arc and incandescent dynamos; it generates electricity for the lamps which light the engineering building and shops, and for charging the secondary battery, as well as for tests of lamps, motors, etc. Sixty accumulators—mostly of the Julien type, and many varieties of primary batteries are available for experiments. It is expected that an "alternating current" dynamo with accessories will soon be procured.

FRESHMAN YEAR.

FIRST HALF YEAR. *Mathematics*.—Algebra, Solid Geometry, five hours. *Chemistry*.—Lectures, three hours. *Drawing*.—Elementary Projections and Descriptive Geometry, five hours. *English*.—Rhetoric and Composition, one hour. *Hygiene*.—Lectures, one hour.

SECOND HALF YEAR. *Mathematics*.—Higher Algebra, Trigonometry and Surveying, five hours. *Drawing*.—Descriptive Geometry, five hours. *Chemistry*.—Laboratory, four hours. *English*.—Rhetoric and Composition, one hour. *Hygiene*.—Lectures, one hour.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Mathematics*.—Analytical Geometry, five hours. *Mechanical Engineering*.—Elementary Mechanics, two hours. *Drawing*.—Details of Machinery, one hour. *Physics*.—Lectures, three hours. *French or German*.—three hours. *English*.—two hours. *Shopwork*.—two hours.

SECOND HALF YEAR. *Mathematics*.—Calculus, three hours. *Mechanism*.—Gear Teeth, and Machine Tools, three hours. *Physics*.—Heat and Electricity, three hours. *French or German*.—three hours. *Physical Laboratory*.—two hours. *English*.—two hours.

JUNIOR YEAR.

FIRST HALF YEAR. *Electricity*.—Theory of Potential, two hours. *Steam Engineering*.—Valve Gears and Thermodynamics, three hours. *Mechanism*.—General Statics, five hours. *Drawing*.—Detail and Assembly Drawings of Machines, two hours. *Physical Laboratory*.—two hours. *English*.—two hours.

SECOND HALF YEAR. *Electricity*.—Electrical Measuring Instruments, two hours. *Mechanics*.—Strength of Materials, five hours. *Steam Engineering*.—Thermodynamics, Boilers, etc., three hours. *Drawing*.—Problems in Design, two hours. *Engineering Laboratory*.—two hours. *English*.—two hours.

SENIOR YEAR.

FIRST HALF YEAR. *Electrical Engineering.*—Technical Application of Electricity to the Telegraph, Telephone, and Electric Light, three hours. *Mechanics.*—Hydrostatics and Hydraulics, four hours. *Mechanical Engineering.*—Dynamics of Machines, three hours. *Physical Laboratory.*—Electrical Testing, two hours. *English Literature*, two hours. *Shop Work.*—Machine Shop, three hours.

SECOND HALF YEAR. *Electrical Engineering.*—Construction of Dynamo Electric Machinery and Transmission of Energy, three hours. *Mechanics.*—Study of Prime Movers and Power Plants, two hours. *Physical Laboratory.*—Electrical Testing, and Research, three hours. *Advanced Physics.*—Memoirs, etc., two hours. *Shop Work.*—Machine Shop, two hours. *Theses.*

DEPARTMENT OF CHEMISTRY.

FACULTY.

MATTHEW H. BUCKHAM, D. D., President, *Political and Social Philosophy.*

NATHAN FREDERICK MERRILL, Ph. D., *Chemistry.*

†**HORATIO LOOMIS**, Sc. D., *Chemistry.*

GEORGE H. PERKINS, Ph. D., *Natural History.*

HENRY A. P. TORREY, A. M., *Logic, Ethics and Theism.*

SAMUEL F. EMERSON, Ph. D., *History.*

LEWIS J. HUFF, *Modern Languages.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics and Physics.*

FREDERICK M. CORSE, A. B., *Mathematics.*

JOSEPH K. CHICKERING, A. M., *English Language and Literature, and Elocution.*

HARRY A. STORRS, C. E., *Electrical Engineering, Drawing.*

JOHN B. STEARNS, B. S., *Instructor in Chemical Laboratory.*

HERBERT S. FOSTER, Captain 20th Infantry, *Military Tactics.*

In this Department, the student, after attending about fifty lectures and recitations in General Chemistry, enters the laboratories where he pursues graded and systematic work, beginning with a schedule of experiments illustrating fundamental principles and cultivating familiarity with the common elements and their compounds. From the outset quantitative methods are followed, as far as practicable.

Qualitative Analysis is next studied. The work includes the use of the spectroscope and qualitative examination of commercial products. Lectures and recitations are maintained.

After completing Qualitative Analysis, Quantitative Analysis is begun, the student proceeding through the simpler determinations

†Absent for the year.

to more difficult analyses. The course embraces gravimetric and volumetric methods with applications to analysis of commercial products. Occasionally the students meet together and present statements of work done in the laboratory with discussion of methods, etc. In this way, each student may derive benefit from the work done in the laboratory by the entire class.

In the last year Organic Chemistry is taken up both in the class room and in the laboratory. This course involves the preparation of organic compounds and their analysis. Students of ability will be encouraged to undertake original investigations under the special supervision of the head instructor. It is proposed to give a course of lectures in Industrial Chemistry and to supplement these lectures with excursions to manufacturing establishments. In the third year facilities are offered, and instruction is given, in Crystallography, Mineralogy, and Assaying of Ores by both fire assay and wet assay. A short course of lectures on the History of Chemistry is given.

BOOKS OF REFERENCE IN CHEMISTRY.—Graham-Otto's *Lehrbuch der anorganischen Chemie*; Gmelin-Kraut's *Anorganische Chemie*; Allen's *Commercial Analysis*; Battershall's *Food Adulteration*; Percy's *Metallurgy*; Eggleton's *Metallurgy*; Lunge's *Sulphuric Acid and Alkali, Coal Tar and Ammonia Industries*; Brush's *Manual of Determinative Mineralogy and Blowpipe Analysis*; Fresenius's *Quantitative Analysis*; Fresenius's *Qualitative Analysis*; Sutton's *Volumetric Analysis*; Roscoe's *Treatise on Chemistry*; Kolbe's *Lehrbuch der organischen Chemie*; Payen's *Précis de Chimie industrielle*; Wagner's *Chemical Technology*; Watt's *Dictionary of Chemistry*; *Journal of the London Chemical Society*; *Zeitschrift für analytische Chemie*; *Berichte der deutschen chemischen Gesellschaft*; *American Journal of Chemistry*; *Chemical News*.

FRESHMAN YEAR.

FIRST HALF YEAR. *Required Studies*—Chemistry Lectures, three hours. Mathematics, five hours. Drawing, four hours. English, one hour. French or German, three hours.

SECOND HALF YEAR. *Required Studies*—Laboratory, six to eight hours. Mathematics, five hours. English, one hour. French or German, three hours.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Required Studies*—Laboratory, ten to fifteen hours. Physics, three hours. German, three hours. English, two hours. *Elective Studies*—Analytics, three hours. History, three hours. French, three hours.

SECOND HALF YEAR. *Required Studies*—Laboratory, fifteen hours. German three hours. English, two hours—*Elective Studies*—Mathematics, History, or French as in first half year. (Students must take one elective throughout the year).

JUNIOR YEAR.

FIRST HALF YEAR. *Required Studies*—Laboratory, including Mineralogy and Blow-pipe Determinations, eighteen hours. Stoichiometry two hours. English, two hours—*Elective Studies*—German, three hours, Calculus, two hours.

SECOND HALF YEAR. *Required Studies*—Laboratory, including Assaying, eighteen hours. English, two hours. Physiology, three hours. *Elective Studies*—German or Calculus as in the first half year. (Students are required to take one elective throughout the year.)

SENIOR YEAR.

FIRST HALF YEAR. *Required Studies*—Laboratory, eighteen hours. Organic Chemistry Lectures, two hours. English, one hour.

SECOND HALF YEAR. *Required Studies*—Laboratory. Organic Chemistry Lectures, two hours. Industrial Chemistry. History of Chemistry, Geology, three hours. Theses.

(Certain of the studies of the Senior Year in the Classical Department may be optional with a corresponding amount of laboratory work throughout this year.)

It is desirable that applicants for admission to full standing in the Chemical Department as candidates for its degree should have had the regular classical course—the usual preparation for college—at some school whose certificates are recognized by this University. In case of deficiency in Latin or Greek or in both of those languages in the preparatory course, the applicant may present himself for examination in French or German or in both; and satisfactory attainments in the elements of those languages will be accepted as substitution for Greek and Latin.

Students showing proper qualifications may be admitted to a special course in Chemistry by permission of the President and of the Professors of the Department; but such students cannot receive the degree.

DEPARTMENT OF AGRICULTURE.

FACULTY.

MATTHEW H. BUCKHAM, D. D., President, *Political and Social Philosophy.*

WELLS WOODBRIDGE COOKE, A. M., *Agriculture.*

LEWIS RALPH JONES, Ph. B., *Natural History.*

CHARLES WALTER MINOTT, B. S., *Horticulture.*

JOSEPH LAWRENCE HILLS, B. S., *Chemistry.*

FRANK ADONIRAM RICH, V. S., *Veterinary Medicine.*

GEORGE H. PERKINS, Ph. D., *Natural History.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics.*

NATHAN FREDERICK MERRILL, Ph. D., *Chemistry.*

JOSEPH K. CHICKERING, A. M., *English.*

LEWIS J. HUFF, *Modern Languages.*

HARRY A. STORRS, C. E., *Electrical Engineering, and Drawing.*

ARTHUR W. AYER, B. S., *Mechanical Engineering.*

FREDERICK M. CORSE, A. B., *Mathematics.*

HERBERT S. FOSTER, Captain 20th Infantry, *Military Tactics.*

The work in the Agricultural Department is intended to give the student both the theoretical and the practical knowledge that will help him to make a success of farming.

The time is divided between lectures or recitations on the principles that underlie the science of Agriculture, and laboratory work. There are facilities for work in veterinary surgery, zoölogy, dairying, horticulture, botany and entomology. In addition to the strictly Agricultural work, the student is given such drill in mathematics

and surveying, as to fit him for the ordinary farm requirements in the matter of road-making, bridge-building, draining, etc. He is also expected to select some courses in the Engineering Department, and during the last two years, in addition to the required work in Agriculture, he is allowed to elect studies from any of the other departments. The students have the advantage of the presence of the State Agricultural Experiment Station.

Agricultural students have the same privileges of the library, reading-room, museum, etc., as the other students, and are subject to the same regulations and requirements, except that they are not required to have Algebra and Plane Geometry for entrance, and Agricultural students who are residents of Vermont are not required to pay tuition. There will be opportunity for several students to earn part of their expenses by work.

Students completing this course receive the degree of Bachelor of Agriculture.

FOUR YEARS' COURSE.

FRESHMAN YEAR.

FIRST HALF YEAR. *Agriculture*.--Fertilizers, natural and artificial.--*Dairying*.--Creamery and Laboratory work. *Mathematics*.--Algebra. *Hygiene*. *English*.

SECOND HALF YEAR. *Agriculture*—Plant Growth. *Veterinary Studies*.--Physiology and Diseases of Domestic Animals. *Mathematics*.--Geometry. *Hygiene*. *English*.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Agriculture*.--Farm Crops. *Veterinary Studies*.--Stock Breeding. *Mathematics*.--Geometry and Algebra. *Chemistry*.--Lectures and Recitations. *English*.

SECOND HALF YEAR. *Agriculture.*—Stock Feeding. *Botany, Mathematics.*—Trigonometry and Surveying. *Chemistry,*—Lectures and Laboratory Work. *English.*

JUNIOR YEAR.

FIRST HALF YEAR. *Agriculture.*—Plant Diseases. *Mechanical Engineering.*—Shopwork. *English.*—Electives.—*French or German, Logic, History, Biology, Physics.*

SECOND HALF YEAR. *Agriculture.*—Contagious Diseases of Animals. *Mechanical Engineering.*—Shopwork. *Horticulture.*—Lectures, Greenhouse and Fieldwork. *English.*—Electives.—*French or German, History, Biology, Physics, Political Economy.*

SENIOR YEAR.

FIRST HALF YEAR. *Agriculture.*—Entomology. *Mineralogy. English.* Electives.—*Political Science, French or German, Electrical Engineering.*

SECOND HALF YEAR. *Agriculture.*—Original Investigations in Agricultural Chemistry, Dairying, Plant Diseases, Diseases of Animals, or Horticulture. *Geology, Theses.* Electives. *Sanitary Engineering, Political Science, French or German.*

DAIRY SCHOOL.

Among the late additions to the equipment of the Agricultural Department is a Creamery where during December was held a four weeks' *Dairy School*. This was designed to teach in a practical manner the manufacture of butter with the latest and most approved apparatus, and was eminently successful. In addition to the regular students given below, several hundred visitors witnessed the operations and inspected the apparatus of the school. The Dairy School will be repeated another winter, beginning either November 28, 1892 or January 2, 1893, and will probably continue for twelve weeks.

STUDENTS IN THE DAIRY SCHOOL.

Bert Melvine Allen,	<i>Springfield.</i>
Guy Howard Bemis,	<i>Plainfield.</i>
Numa Bernatchez,	<i>St. Thomas, P. Q.</i>
Frank Allen Briggs,	<i>Franklin.</i>
Charles Edward Bullock,	<i>Canton, Pa.</i>
Napoleon Edward Clement,	<i>St. Anne de la Perade, P. Q.</i>
Herbert Churchill,	<i>North Georgia.</i>
Saul Côté,	<i>St. Flavien, P. Q.</i>
Thomas Edward Donahue,	<i>Shelburne.</i>
William Charles Donahue,	<i>Essex.</i>
Luke Caleb Fisher,	<i>Cabot.</i>
Thomas John Fitzgerald,	<i>W. Swanzey, N. H.</i>
Robert Frank,	<i>St. Albans.</i>
Emilien Dolphis Garreau,	<i>St. André Avellin, P. Q.</i>
Arthur Eugene Goodrich,	<i>Essex Centre.</i>
Edward Gordon,	<i>Pearl.</i>
Seth Gordon,	<i>Chazy, N. Y.</i>
James Augustus Hayes,	<i>Sheffington, P. Q.</i>
George Arthur Haynes,	<i>East Hardwick.</i>
Fred Erwin Jackson,	<i>South Newbury.</i>
Alson Brainard Judd,	<i>North Georgia.</i>
Charles Herbert Ladd,	<i>Franklin.</i>
Anson Lampson,	<i>Williston.</i>
Zed Sanford Lawrence,	<i>West Shefford, P. Q.</i>
Burke Leavenworth,	<i>East Charlotte.</i>
Aimé Lord,	<i>L'Assomption, P. Q.</i>
François Xavier Mercier,	<i>St. Anne de la Perade, P. Q.</i>
Young Godfrey Nay,	<i>Milton.</i>
John Peltier,	<i>East Rupert.</i>
Alexander A. Prefontaine,	<i>Green Island, P. Q.</i>

Edwin Hewitt Prindle,	<i>East Charlotte.</i>
Robert Myron Reed,	<i>Burlington.</i>
John Edwards Reynolds,	<i>Essex Junction.</i>
Franz Edward Richter,	<i>Grand Isle.</i>
Denzel French Robinson,	<i>Pauclet.</i>
Lynn Judson Sanderson,	<i>Highgate.</i>
Thomas Cree Seagur,	<i>Brandon</i>
Avedis Bedros Selian,	<i>Asia Minor.</i>
William Henry Small,	<i>Morrisville.</i>
Oscar Follett Stearns,	<i>Windham.</i>
William Eugene Stevens,	<i>Greensboro Bend.</i>
Earnest Alfred Sturtevant,	<i>East Fairfield.</i>
Bert Lewis Sweeny,	<i>North Georgia.</i>
Andrew Durkee Ufford,	<i>Fairfax.</i>
Charles Henry Weed,	<i>Essex Junction.</i>
Ivan Comings Weld,	<i>Windsor.</i>
Henry Otis Whitney,	<i>Williston.</i>
Frank Wilson,	<i>Montreal, P. Q.</i>
Ferguson Melvin Wright,	<i>East Enosburgh.</i>

SHORT COURSE IN AGRICULTURE.

This course occupies one year and is designed to meet the wants of those who cannot afford the time and the money to take a four years' term of study.

The subjects are purely Agricultural in their nature, including instruction in Feeding Farm Stock, Dairying, Structure and Diseases of Domestic Animals, Fertilization and Cultivation of Farm Crops. The requirements for entrance to this course are the same as to the four years course.

TERMS OF ADMISSION.

CLASSICAL DEPARTMENT.

It is required by the laws of the University that every person proposing to become a student in the Classical Department of the University shall produce satisfactory testimonials of good moral character, be at least fifteen years of age, and be prepared to sustain before one or more of the Faculty an approved examination in the following Preparatory Studies :

English Grammar, Orthography, and Punctuation.

Ancient and Modern Geography.

Arithmetic ; Algebra through Quadratic Equations ; Plane Geometry.

Latin Grammar, including Prosody ; Cæsar, four books ; Cicero, six orations and the *De Amicitia* ; Virgil, six books of the *Æneid* and the *Eclogues* ; the first thirty lessons in Jones's Latin Prose Composition ; and Roman History to Augustus. Leighton's or Pennell's History of Rome is recommended.

Greek Grammar, including Prosody ; four books of Xenophon's *Anabæsis* ; three books of Homer's *Iliad* ; Woodruff's Greek Prose Composition ; and Greek History to the death of Alexander. Smith's *Smaller History of Greece* and Oman's *History of Greece* are recommended.

It is desired that in preparation for the examinations of 1892 the following authors and subjects be read : Shakespeare's *Coriolanus*, Irving's *Life of Columbus*, Scott's *Lady of the Lake*, Hawthorne's *House of the Seven Gables* ; and for the examinations of 1893, the following : Bunyan's *Holy War*, Shakespeare's *As You Like It*, Dickens's *Christmas Carol*, Longfellow's *Evangeline*, Macaulay's *Essay on Milton*.

An elementary knowledge of French will also be expected. In the case of Latin and Greek authors, substitutions will be accepted, if they be full equivalents for the work here prescribed.

In the pronunciation of Greek, it is desired that the accents be carefully observed, and that the letters be sounded as recommended in Hadley and Allen's Grammar, pp. 4, 5 and 7.

Teachers are urgently requested to give their pupils practice in reading at sight. They are also urged to have their pupils read aloud in *both Greek and Latin* as much as possible, that the ear may be trained to the sound of the language and that the words may gradually come to convey a meaning to the pupil's mind immediately and not through their English equivalents.

Students entering without Greek must fulfil all the other requirements for admission.

THE SCIENTIFIC DEPARTMENTS.

Except as noted under the Agricultural Department applicants for admission must be at least fifteen years of age, must bring satisfactory testimonials of good character, and be prepared to pass a satisfactory examination in all the branches of a common school education, and particularly in English Grammar, Modern Geography, Arithmetic, including the metric system, Algebra through quadratic equations, and Plane Geometry. For Chemical Department see page 55.

ENTRANCE BY CERTIFICATES.

Candidates will be admitted to any of the above Departments *without examination* in case they bring certificates of graduation from Preparatory Schools whose courses of study fully meet the above requirements. If the certificate is defective in respect to any

required study, the student will be examined in that study. Certificates must be made out in blank forms furnished by the Secretary of the Faculty. Students admitted by certificate will be regarded as being on probation during the first half year.

Students coming from another College must present a certificate of regular dismissal from the institution they have left, and furnish satisfactory evidence of proficiency in all the studies—or their equivalents—which have been pursued by the class they propose to enter. For admission to an advanced class a corresponding increase in age is required, and a thorough knowledge of all the studies that have been pursued by the students of the same class.

Young women are admitted to all the Courses in the Classical and Scientific Departments of the University, upon the same conditions as young men. They are required to room and board in private families approved by the Faculty.

UNMATRICULATED STUDENTS.

Persons of suitable age and attainments may, by special permission of the Faculty and by the payment of a specified fee, pursue certain studies in connection with the regular college classes without becoming matriculated members of the University. The classes which are open to such students, with the conditions of admission, will be made known on application to the President.

EXAMINATIONS.

At the close of each half year students are examined in the studies of that half year. The examinations are written, or oral, or both, at the discretion of the Instructor. A record is kept of the results of these examinations and a transcript of each student's record is sent to his parent or guardian.

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IMPORTANT REGULATIONS.

The students in all departments, except those in the Department of Medicine, are required to attend prayers in the Chapel, and are in every respect subject to the same rules of order and discipline.

ABSENCES.

After a recess work shall not be resumed until the first afternoon exercise.

For two days before and after a recess every absence shall count as two.

A committee of three, which shall have in charge the absences of students, shall be appointed by the President at the beginning of each half year.

A student who shall have twelve absences recorded against him shall be notified of the fact by the committee. In case a student have fifteen absence marks recorded against him, he shall be formally warned by the committee and his parents or guardian shall be notified. If a student exceed the limit of his allowed absences (eighteen for the half year) his scholarship, if he hold one, shall be forfeited, and he shall be put on probation, with loss of absence allowance for the ensuing half-year. If he incur further absence marks, he shall be suspended on vote of the Faculty. Absences incurred through sickness must, if the committee shall require it, be certified by a physician. Absences from military exercises shall be treated as other absences.

The above rules shall apply also to absences from chapel exercises, subject however to such exceptions and privileges as are now granted.

EXAMINATIONS.

1. Students who fail in the regular examination in any subject will be allowed to take a re-examination in that subject one year from the time of failure.

2. Students who fail in the re-examination will cease thereupon to be candidates for a degree.

3. In case of Seniors, all delinquencies up to the close of Junior year must be made up by the end of the first half of Senior year. Those who fail to make up their delinquencies by that time will cease thereupon to be candidates for a degree.

4. These rules shall apply to all examinations held subsequent to their passage.

MILITARY INSTRUCTION.

In accordance with an act of Congress, an officer of the United States Army is stationed at the University as Professor of Military Science and Tactics, and all male students, except those in the Medical Department, are required to take part in military drill and instruction two hours each week. The military exercises are so ordered as not to interfere materially with other college duties, and are sufficiently attractive to inspire interest and enthusiasm in a body of young men.

The United States Government furnishes breech-loading rifles, with ammunition, for infantry drill, and two three-inch guns, with ammunition and equipments, for artillery practice ; so that the student, while pursuing the usual college curriculum, has an opportunity to become familiar with the practical details of organizing and drilling troops and manipulating fire-arms. A simple uniform, costing about \$15, is worn during drill.

BATTALION ORGANIZATION.

The students are organized into a battalion of two companies under the army officer on duty at the University as Commandant. Appointments are based upon soldier-like qualities and attainments. In general, the officers are taken from the Senior Class, the sergeants from the Junior Class, and the corporals from the Sophomore Class.

Commandant, Herbert S. Foster, Captain, 20th U. S. Infantry.

Adjutant, 1st Lieut. Robert E. Lewis.

Sergeant Major, John M. Evans.

Color Sergeant, Lyman Allen.

COMPANY A.**COMPANY B.****CAPTAINS.**

George F. Pitkin,

George C. Martin.

FIRST LIEUTENANTS.

Frank D. Farr,

Francis K. Kyle.

SECOND LIEUTENANTS.

George T. Cooke,

Charles L. Orton.

FIRST SERGEANTS.

Horace E. Dyer,

George W. Benedict.

SERGEANTS.

Frederic A. Wheeler,

Frank R. Wells,

William M. Crombie,

Joseph D. Allen,

William Hazen,

Henry J. Kilbourn,

Henry A. Torrey,

Leon K. Wiswell.

CORPORALS.

William C. Hopkins,

Lawrence S. Miller,

Walter H. Cambridge,

Charles H. Mower,

Edward M. Wheeler,

Frederick M. Knights,

Egbert J. Armstrong,

Frank L. Dunham.

SCHOLARSHIPS.

Scholarships, affording aid to young men of limited means, to the amount of tuition, have been endowed as follows :

The Washburn Scholarships, twelve in number, by Daniel Washburn, M. D., of Stowe, for the benefit of young men studying for the Christian ministry, or, in default of such applicants, of other deserving young men.

The Louisa H. Howard Scholarships, five in number, by Miss Louisa H. Howard, of Burlington.

The Sarah B. Jacobs Scholarships, seven in number, by Mrs. Sarah B. Jacobs, of Boston, for the benefit of graduates of Brigham Academy, at Bakersfield, Vt.

The Bertram Scholarship, by John Bertram, Esq., of Salem, Mass.

The Green Scholarship, by Horace Green, LL. D., of New York City.

The Fairbanks Scholarship, by the Hon. Erastus Fairbanks, of St. Johnsbury.

The Parker Scholarship, by the Rev. Charles C. Parker, D. D. 1841, in memory of himself and son, Charles Edmund Parker, 1867.

The Buckham Scholarship, by George Buckham, Esq., of New York City, by annual payment.

The Westford Scholarship, by the Hon. L. P. Poland, LL. D., of St. Johnsbury.

The Converse Scholarship, by John H. Converse, 1861, of Philadelphia.

The Lawrence Barnes Scholarship, for the benefit of one young woman, by annual payment.

The Crombie and Morse Scholarship, for the benefit of one young man, by annual payment.

The Edwin Wright Marsh Scholarship, endowed by Charles P. Marsh, Esq., 1839, of Woodstock, in memory of his son, of the class of 1872, for the benefit, in the first instance, of students from the town of Weathersfield, Vt.

The Rich Scholarship, by Charles W. Rich, Esq., 1836, of St. Albans.

The Rich Scholarship, by the same, for the benefit, first, of students from the town of Swanton, Vt.

The Isle LaMotte Scholarship, by N. S. Hill, Esq., of Burlington, for the benefit of students from Isle LaMotte, and failing such, from Craftsbury.

The class of 1861 Scholarship, partially endowed, and not yet available.

Several other classes are undertaking to endow scholarships, but none of them are as yet available.

Appointments are made to these scholarships by the Faculty from term to term, and are conditioned on the attainment of a certain grade of scholarship and on exemplary conduct.

The endowment of additional scholarships would enable the University to extend its benefits to those who could not otherwise afford the expense of a four years' maintenance in College. The minimum endowment is one thousand dollars. The annual payment of \$60 relieves one student from the payment of tuition alone; of \$80, from the payment of tuition and incidentals.

STATE SCHOLARSHIPS.

Thirty State Scholarships, covering tuition and incidental expenses in the Classical or Scientific Departments, are now available. Nomination to these scholarships rests with the Senators from the several counties, to whom application should be made.

PRIZES.

PRIZES IN ELOCUTION.

By gift from Dr. William E. Forest, New York City, class of 1874, prizes of \$25, \$15, and \$10, are offered to members of the Sophomore and Freshman classes for the best declamation of passages in oratorical prose.

FRESHMAN PRIZES.

Mr. Charles P. Marsh, of Woodstock, of the class of 1889, has instituted three prizes of \$25 each, to be awarded to candidates for admission to the Freshman class who shall pass the best examinations in Greek, in Latin, and in Mathematics.

Examinations will take place Saturday, October 15, 1892.

PRIZES FOR PROGRESS.

A friend of the University offers a prize of \$25 to be awarded annually at the end of the Junior year to the student who shall have made the greatest progress in studies during the three years of the College course.

PRIZE DEBATE.

Mr. John H. Converse, 1861, has established the "Converse Debate Prizes" of \$60 as first prize and \$25 as second prize, to be awarded, in accordance with regulations to be made by the Faculty, to contestants from the Junior class in a public Debate held in connection with the exercises of Commencement.

THE PHELPS PRIZE.

A prize of Fifty Dollars in gold, endowed in memory of the late Edward Haight Phelps, C. E., class of 1874, will be awarded by the Faculty each year at Commencement to a graduate of that year in Civil Engineering who shall have exhibited conspicuous

merit in professional studies and high and noble traits of personal character. A special certificate will accompany the Prize, indicating the conditions upon which it has been awarded. In case no award shall be made in any year, the same amount of money will be expended in the purchase of books on the subjects of Civil Engineering for the use of the Department.

THESIS PRIZE.

A prize of Twenty-Five dollars is awarded to the member of the Senior Class in the Engineering Department presenting the best thesis.

HONOR EXAMINATIONS.

FOR SENIORS.

For the benefit of students who wish their names to appear on the Honor List [see below] at graduation in recognition of extra work done by them in some special subject or subjects, special Honor Examinations will be held shortly before Commencement in the following subjects : Greek, French, German, English, History, Philosophy, Political Science, Mathematics, Biology, Chemistry.

It is required that any student who desires to present himself for this examination shall make written application to the Faculty not later than November 1st. A candidate before presenting himself for examination must have taken all the regular courses offered in the subject in which he is to be examined. He must further have passed the Sophomore Honor Examination [see below] in that subject, if such examination shall have been held, unless specially excused. A candidate must also show *general* good standing in all his work.

FOR SOPHOMORES.

For the benefit of Sophomores who wish their names to appear on the Honor List at Commencement, special Honor Examinations

will be held shortly before the close of the academic year in the following subjects : Greek, French, German, Mathematics.

It is required that any student who desires to present himself for this examination shall make written application to the Faculty not later than November 1st. A candidate before presenting himself for examination must have taken all the regular courses offered in the subject in which he is to be examined, unless specially excused, and he must have attained a high rank in those courses. This examination shall be open also to Juniors.

The amount and nature of the extra work specially covered by any Honor Examination shall be determined by the instructor who has it in charge. It is required that the student attain a high standard of excellence at the examination.

In place of and as equivalent to an Honor Examination the instructor may, if he pleases, accept a thesis from a student upon some subject which shall be assigned.

HONOR LIST.

There shall be published on the morning of Commencement Day in each year an Honor List containing (1st) the names of students who attain grade A in three-fourths * of their work throughout the college course and do not fall below grade B in anything ; and (2nd) the names of students who pass the special Senior Honor Examination offered in any subject. Further, in case a student shall attain grade A in three-fourths of his work and shall not fall below grade B in anything, and in addition shall pass the special Senior Honor Examination offered in any subject, he may be awarded *Double Honors*.

The Honor List shall contain also the names of students who pass the special Sophomore Honor Examination offered in any subject.

*The reckoning shall be made on the basis of the rank-report for each half year.

It shall contain further the names of all from the several classes to whom prizes have been awarded during the year, and the names of those appointed to speak at the Junior Prize Debate and on Commencement Day. To this list may be added the names of those who, for these occasions, have presented essays of unusual merit, but who for any reason have not been appointed to deliver them in public.

The Honor Lists will be published on the bulletin boards, in the Billings Library, and in the annual catalogue, and copies will be printed for sale.

DEGREES.

For the degrees of Bachelor of Arts and Bachelor of Philosophy see page 19.

DEGREES OF BACHELOR OF SCIENCE, CIVIL ENGINEER, ELECTRICAL ENGINEER AND MECHANICAL ENGINEER.

The Degree of Bachelor of Science *in Civil Engineering*, or *in Electrical Engineering*, or *Mechanical Engineering*, is conferred upon students in the Engineering Department who shall complete the courses of study corresponding respectively to these titles.

The Degree of Bachelor of Science *in Chemistry* is conferred upon the completion of the work required by the Department of Chemistry.

The Degree of Civil Engineer may be conferred upon Bachelors of Science of this University, who have taken the Bachelor's degree for work in Civil Engineering, if they furnish satisfactory evidence that they have pursued further technical studies for at least one year, and in addition have been engaged in professional work in positions of responsibility for another year.

The first of the above requirements may be satisfied by pursuing at the University, under the direction of the Faculty, a prescribed

amount of study for a time, not necessarily consecutive, equivalent to a college year. If the candidate does not reside at this University, his course of study must be approved in advance by the Professor of Civil Engineering, and he must prepare a satisfactory thesis on some engineering topic, to be presented together with a detailed account of his professional work, one month at least before the date of the annual Commencement at which he expects to receive his degree.

The condition upon which the Degrees of Electrical Engineer and Mechanical Engineer are conferred upon Bachelors of Science of this University who have taken these degrees for work done in Electrical Engineering and Mechanical Engineering are analogous in character and in amount to those given for the Degree of Civil Engineer.

For the degree given in the Agricultural Department see page 57.

THE DEGREE OF MASTER OF ARTS.

1. The degree of Master of Arts may be conferred upon resident graduates of one year's standing, of this or any other reputable college, and upon non-resident graduates of two years' standing of this University, who shall pursue a course of liberal study (not professional) subject to the approval of the Faculty.

2. Candidates for the A. M. degree shall be required to present a thesis upon some branch of liberal study pursued since graduation, and to pass an examination before the Faculty.

3. The thesis must be presented at least two months before Commencement, and be approved before the candidate shall be admitted to examination.

4. The thesis must be written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of authors consulted. A copy of the same shall be deposited in the University Library.

5. The examination shall be both written and oral, and copies of examination papers shall be kept on file at the University Library. The examination shall be conducted by a committee of the Faculty, who shall appoint the time and place of examination, decide upon the merits of the candidate, and, if they deem him worthy, recommend him to the Trustees for graduation.

THE DEGREE OF DOCTOR OF PHILOSOPHY.

The degree of Doctor of Philosophy is conferred not for proficiency in miscellaneous studies, nor for the faithful discharge of prescribed work within a given period; but solely as certification of attested ability for independent investigation.

The object in offering the degree is to encourage original research into some branch of learning and to develop the ability to go to the sources of knowledge in Science, Literature, Art or Philosophy and to establish upon the authority of the sources some noteworthy truth.

It will be absolutely necessary therefore for the candidate to give evidence of this power by the original treatment of a suitable subject in a written thesis, and by creditably sustaining a critical examination, both written and oral, in one principal and one subsidiary subject.

The degree may be conferred upon resident and non-resident candidates alike, but only after a three years' course of study under competent direction and subject to the approval of the Faculty.

The University offers no regular graduate courses, but members of the Faculty will superintend the work of candidates for the degree who may wish to pursue their studies at the University.

Further requirements are as follows:

1. All college graduates are eligible for the degree, but a ready

working knowledge of French and German will be indispensable in all, and of Latin in most cases.

2. The thesis must be presented by the opening of the second half year in February, and must be approved before the candidate shall be admitted to examination.

3. The thesis must be legibly written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of the authors consulted. A copy of the thesis shall be deposited in the University Library.

4. The fee for the degree is \$25.

Resident candidates will be charged in addition an annual tuition fee of \$100. Non-resident candidates will be charged, for verification of thesis and examination, \$75.

For the degree of Doctor of Medicine see page 85.

Students who are not candidates for a degree may be awarded certificates of Proficiency in recognition of the work which they have done.

RELIGIOUS SERVICES.

The institution, while not connected with any particular denominational body, and having members of many communions in its board of instruction, aims to impress religious truths and obligations upon all students. A responsive religious service is held every morning in the College Chapel which the members of the Faculty and the students are required to attend.

A flourishing Young Men's Christian Association of students is maintained, and is in close union both in sympathy and co-operative work with the Young Men's Christian Association of the city. The numerous churches of the place give to the students hospitable welcome to their services and activities. A voluntary Bible class of students is conducted by the President on Sunday afternoons in the College building.

THE LIBRARY.

The Library of the University, selected with special reference to the several departments of study, contains 30,640 volumes, besides the 12,829 volumes that form the library of the late Hon. George P. Marsh, a collection of the highest value in the departments of philology, European literature and history, and physical geography. This collection is the gift of the late Hon. Frederick Billings of Woodstock, and is deposited in a room especially provided and elegantly appointed to receive it. The whole Library has been carefully arranged by subjects, on the Dewey system, with accession and shelf-catalogues. A card catalogue on the dictionary plan is in progress, being already complete for the subjects, Literature, Philology, History, Industrial Arts, Ethics, Philosophy and portions of Natural Science. A full catalogue of the Marsh collection, by authors and subjects, is now in course of printing, and will be published by Commencement.

The beautiful and commodious Billings Library, erected at a cost exceeding \$150,000, with a shelving capacity of 100,000 volumes, contains the general library of the University and the special collections. The apse, originally designed for the Marsh collection, has been appropriated to the use of the reference library and reading room.

The gift of \$10,000 which Mr. Billings made for the increase of the Library, is now being expended, and several thousand volumes have already been added.

The income from the bequest of Miss Maria Loomis, of Burlington, of the sum of \$10,000, has become available for the purchase of books.

The Library is open seven hours daily on week days for consulting and drawing books, and for two hours on Sunday afternoons. The reading room of the Library is supplied with all the leading scientific and literary periodicals. Persons not connected with the

University have free use of the Library for consultation, and, on special permission from the President or Librarian, are allowed to draw books. Students, as residents of the city, have also the use of the Fletcher Free Library, a collection of over 20,000 volumes for loan and reference, which is open daily.

THE MUSEUM.

The Museum Building is open to visitors throughout the year. Should the door be locked, the key may be obtained by applying to the Librarian of the Billings Library or to the Janitor. The collections, though not large, contain many fine and rare specimens. On the first floor are mounted mammals, including nearly all native in this state, and a few foreign species, several hundred interesting specimens of birds, representing most of those found in eastern North America, among them some of the rarest of the water birds; a good series of the eggs of American birds, a small collection of skeletons and skulls and other objects illustrating Vertebrate Zoölogy. In wall cases on this floor are several thousand specimens of the minerals of America and Europe, some of them exceptionally valuable. Of these especially worthy of notice are the specimens of sulphur and the minerals associated with it in Sicily, which were obtained by the late Hon. G. P. Marsh and by him given to the Museum. There are also excellent series of specimens illustrating the various forms of quartz and lime. The more common metallic ores, iron, lead, copper, silver, etc., are also very well represented. In this room there has been recently placed a quite complete and valuable set of the volcanic products of Vesuvius, and another of the crystalline rocks of Europe, over five hundred specimens in all, which were obtained and given to the Museum by Rev. Edward Hungerford. There is also a complete set of the rocks of Vermont, which for lack

of room is only in part displayed in open cases. Here is also the magnificent bas-relief from one of the palaces of Nimroud, which was given to the Museum by Mr. John H. Converse.

On the second floor of the building are cases containing specimens illustrating Invertebrate Zoölogy—a fine collection of shells and smaller collections of sponges, corals, etc., with a beautiful series of glass models representing marine forms which cannot be preserved for exhibition because of the delicacy of their structure. In this room are several thousand examples of the work in copper, stone and pottery of the ancient inhabitants of Vermont. Similar objects from many other parts of the country, including a series of jars and other objects of baked clay from pre-Columbian graves in Costa Rica, are exhibited in other cases. Along the west side of the room are several cases containing the remarkably fine Read collection of arms, articles of dress, utensils, and ornaments of the Sioux Indians of the Northwest. In the wall cases of this room is the Palæontological collection, in which all the geological formations of America and Europe are more or less fully represented. Several hundred examples of the wood of North and South American forest trees and a large Herbarium are also placed in this room.

In addition to the collections named, the Museum possesses a fine series of ancient Greek and Roman coins, as well as coins of modern Europe and Asia and of the United States. There is also an alcoholic collection of American fishes and reptiles and a set of anatomical models. These latter collections are not open to the public.

BOARDING HALL.

There is a Commons Hall on the College grounds at which good table board is furnished to students at cost. The rate of board at present prices of provisions is from \$2.60 to \$3.00 per week.

EXPENSES.

Tuition per annum.....	\$60 00	\$60 00
Library, Catalogues and Commencement.....	9 00	9 00
Room Rent, <i>with care of rooms</i> , suites accommodat- ing 2, 3, or 4, for each student.....	11 50	30 00
Single rooms, <i>with care</i> , \$18.00 to \$23.00.		
Contingent expenses for printing, services, repairs, etc.....	9 00	9 00
Reading Room.....	2 00	2 00
Total of College Bills.....	\$91 50	\$113 00
Board without rooms, \$2.50 to \$3.50 per week, 37 weeks.....	\$ 92 50	\$129 50
Fuel, lights and washing.....	20 00	30 00
	<u>\$204 00</u>	<u>\$272 50</u>

The students' rooms are furnished at the expense of the University. Students need to provide only carpets, mattresses, and bed clothing. The beds are furnished with wire mattresses. All rents include care of room by college servants. Fuel and lights are estimated on the supposition that two students occupy one room. Good board with room may be obtained in private families at \$3.50 to \$4.50 a week. Other expenses, for clothing, travelling, books, stationery, society and class taxes, etc., vary with the circumstances and habits of the student. Those who pursue the Laboratory Course must also pay a fee of \$15.50 each half year for chemicals, gas, etc., besides breakage.

Payment of the College Bills is required in advance for the first term, and in advance for each subsequent term unless a bond, satisfactory to the Treasurer, in the sum of three hundred dollars, has been lodged with him to secure their payment; in which case the term bill becomes due at the end of the term. Students temporarily

absent from the University are charged as if present. Students entering an advanced class are required to pay one-half of the back tuition, unless from another college.

The Central Vermont and Wells River railroads carry students for half fare.

THE PARK GALLERY OF ART.

TRUSTEES.

PRES. M. H. BUCKHAM, *President ex-officio*.

PROF. H. A. P. TORREY, *Secretary*.

HON. F. C. KENNEDY, *Treasurer*.

HON. G. G. BENEDICT, COL. LEGRAND B. CANNON,

HON. E. J. PHELPS.

It is the aim of the Trustees of the Art Gallery to gather into a small but good collection, such works of art, paintings engravings, models, casts, photographs, etc., as will serve to illustrate the history and the principles of both ancient and modern art. The nucleus of such a collection has already been secured. Contributions are solicited in any of the following classes, or funds for the purchase of the same:

1. Paintings—not copies—by either American or foreign painters.
2. Works of Sculpture: statues, busts, reliefs, medallions, whether original or copies made under the eye of the sculptor.
3. Original drawings.
4. Casts from noted sculptures. These are especially valuable in art studies and are comparatively inexpensive.
5. Bronzes, terra cottas, enamels, faiences, ancient vases, works in metal and glass, tapestries, etc., in which the artistic merit is conspicuous.
6. Valuable engravings, wood-cuts and etchings.
7. Photographs from originals of the great masters in painting, and from the best works in sculpture and architecture.
8. Works on art, biographies, dictionaries, criticism, etc. The names of the donors will be inscribed on works of art presented to the gallery.

DEPARTMENT OF MEDICINE.

FACULTY.

MATTHEW HENRY BUCKHAM, D. D.,

President.

JOHN ORDRONAU, M. D., L. L. D.,

Professor Emeritus of Medical Jurisprudence

J. WILLISTON WRIGHT, A. M., M. D.,

Professor Emeritus of the Principles and Practice of Surgery.

WALTER CARPENTER, M. D.,

Professor Emeritus of the Principles and Practice of Medicine.

ALBERT F. A. KING, A. M., M. D.,

Professor of Obstetrics and Diseases of Women.

ASHBEL PARMELEE GRINNELL, M. D.,

Professor of the Theory and Practice of Medicine ; Consulting Physician to
The Mary Fletcher Hospital, and Dean of the Faculty.

RUDOLPH AUGUST WITTHAUS, A. B., M. D.,

Professor of Chemistry and Toxicology.

J. HENRY JACKSON, A. M., M. D.,

Professor of Physiology and Microscopic Anatomy.

WILLIAM B. TOWLES, M. D.,

Professor of General and Special Anatomy.

J. H. WOODWARD, B. S., M. D.,

Professor of Materia Medica and Therapeutics ; Secretary of the Faculty.

ABEL M. PHELPS, M. D.,

Professor of Surgery ; Consulting Surgeon to Mary Fletcher Hospital ; Sur-
geon to the Charity Hospital, N. Y.

PROFESSORS OF SPECIAL SUBJECTS.

STEPHEN MARTINDALE ROBERTS, A. M., M. D.,

Professor of Diseases of Children.

WILDER L. BURNAP, A. M.,

Professor of Medical Jurisprudence.

GEORGE B. HOPE, M. D.,

Professor of Diseases of the Throat.

E. D. FISHER, A. M., M. D.,

Professor of Diseases of the Mind and Nervous System.

J. H. WOODWARD, B. S., M. D.,

Professor of Diseases of the Eye and Ear; Ophthalmologist to The Mary Fletcher Hospital.

WILLIAM WOTKYNs SEYMOUR, A. B., M. D.,

Professor of Surgical Diseases of Women.

CONDICT W. CUTLER, M. S., M. D.,

Professor of Dermatology.

JOHN BROOKS WHEELER, A. B., M. D.,

Professor of Clinical and Minor Surgery.

HENRY CRAIN TINKHAM, M. D.,

Adjunct to the Chair of Anatomy and Demonstrator of Anatomy.

JO H. LINSLEY, M. D.,

Professor of Pathology and Bacteriology.

CHARLES F. BRANCH, M. D.,

Professor of Sanitary Science and Hygiene.

JAMES R. HAYDEN, M. D.,

Lecturer on Venereal Diseases.

FACULTY OF THE PRELIMINARY SESSION, 1891-'92.

PROFESSOR A. P. GRINNELL, M. D.,

Instructor in Theory and Practice of Medicine; Consulting Physician to The Mary Fletcher Hospital.

JOHN BROOKS WHEELER, A. M., M. D.,

Instructor in Principles and Practice of Surgery; Attending Surgeon to The Mary Fletcher Hospital.

HENRY CRAIN TINKHAM, M. D.,

Instructor in Anatomy ; Attending Physician to The Mary Fletcher Hospital.

J. C. RUTHERFORD, M. D.,

Instructor in Obstetrics ; Attending Physician to The Mary Fletcher Hospital.

B. J. ANDREWS, M. D.,

Instructor in Physiology ; Superintendent of The Mary Fletcher Hospital.

L. W. FLANDERS, M. D.,

Instructor in Materia Medica and Therapeutics.

C. S. BOYNTON, M. D.,

Instructor in Chemistry.

THE THIRTY-NINTH REGULAR COURSE OF LECTURES.

The thirty-ninth regular course of lectures will commence on Thursday, February 25th, and will continue twenty weeks. This Course will consist of five or six lectures daily, in the various departments of Medicine and Surgery.

REQUIREMENTS FOR ENTRANCE.

A candidate who has been twice rejected on final examination at this College shall not be admitted to matriculation.

All students who have matriculated in this Department of the University *prior to July, 1891*, will be admitted to the lectures and enrolled as students in regular standing, *without preliminary examination*.

Applicants who do not belong to this class, will be required to pass an Entrance Examination in *Arithmetic, Grammar, Geography, Orthography, American History, English Composition* and *Elementary Physics*, before they may be regularly enrolled as students in good standing in this Department. But applicants who may have failed in one or more branches at these examinations, may be enrolled as *conditioned* students ; they must make up the deficiency,

however, during the first year, before they can be enrolled as students in regular standing.

EXCEPTIONS.

Such entrance examination will not be required of the following classes of students :

1. Those who declare themselves *in writing* not to be candidates for the Degree in Medicine from this College.

2. Those who have received the Degree of A. B., A. M., B. S., M. S., Ph. B., or Ph. D., from any College or University which maintains a satisfactory academic standard.

3. Those who have successfully completed a full year's course of study in any College or University which maintains a satisfactory academic standard.

4. Those who have passed satisfactorily the entrance examination to the classical or Scientific Departments of the University of Vermont, or to any other College or University which maintains a satisfactory academic standard.

5. Those who have passed the entrance examination to a Medical School having requirements for entrance equivalent to those adopted by this Faculty.

6. Those who received a "Medical Student's Certificate" from the Regents of the State of New York, or from any similarly constituted authority in other States.

7. Those who have received a Diploma or a Certificate for any ten studies from the Regents of the State of New York, or from any similarly constituted authority in other States.

8. Those who have satisfactorily completed a three years' course in a High School, Normal School, or Academy.

ENTRANCE EXAMINATIONS.

The Entrance Examinations will be conducted at Burlington, Vermont, by a Board of Examiners appointed by the Medical Faculty.

Arrangements have been made to enable students to take, in Burlington, the examination required by the Regents of the University of New York. These examinations will be conducted by an authorized agent of the Regents of New York.

The regular examinations for entrance to the University, to which Medical Students are admitted, will take place the last week in September and the last week in June. Special examinations for entrance to the Medical College only, will be held the first week in November, the last week in February, and the first week in April of each year.

REQUIREMENTS FOR GRADUATION.

Students who have matriculated in this College prior to July 1, 1890, will be subject to the regulations and requirements for graduation as printed in the announcement for 1890.

THREE FULL COURSES OF LECTURES, OF AT LEAST TWENTY WEEKS EACH, WILL BE ABSOLUTELY REQUIRED OF STUDENTS WHO DO NOT COME UNDER THE ABOVE REGULATION, AND NO PERIOD OF PRACTICE WILL BE TAKEN AS AN EQUIVALENT OF ONE COURSE.

No candidate shall be admitted to an examination until all fees due the College from such candidate shall have been paid.

Candidates for the Degree of Doctor of Medicine, before presenting themselves for examination, must have attended at least three full courses of lectures of twenty weeks duration each, the last at this College. The candidate must have studied medicine three years, must have attained the age of twenty-one years, and must present full certificates of the time of his study, of age, and of moral character. Each candidate is required to deposit his examination fee

with the Secretary of the Medical Faculty one month before the close of the session, and to furnish evidence of having pursued the study of Practical Anatomy under the direction of a demonstrator. He must also pass a satisfactory written or oral examination before the Medical Faculty and Board of Medical Examiners appointed by the State Medical Society. No thesis is required.

The tickets and Diplomas of Eclectic, Homœopathic, or Botanic Colleges, or of Colleges devoted to any special system of medicine, are considered irregular, and will not be recognized under any circumstances. Certificates from preceptors who practice any particular system of medicine, or who advertise, or violate in any way the Code of Ethics adopted by the profession, will not be accepted under any circumstances, even if the preceptors be regular graduates in medicine.

Graduates of other regular colleges who desire a Degree from this University must pass a satisfactory examination in the branches of Anatomy, Physiology, Chemistry, Materia Medica, Practice of Medicine, Surgery and Obstetrics. No thesis is required.

No credit in time or in lectures shall be given any student, by virtue of his Degree in Pharmacy, Dentistry, or Veterinary Surgery.

Degrees *in absentia* are not conferred by this University under any circumstances whatever.

SPECIAL EXAMINATION IN THE ELEMENTARY DEPARTMENTS.

Students who have attended two full courses of lectures *in all departments taught in this College*, may be examined upon Anatomy, Physiology, Chemistry and Materia Medica, at the end of the second course, and if they be successful in these examinations, will be examined at the end of the third course upon Practice of Medicine,

Surgery and Obstetrics only. Candidates for the Primary examinations will be required to pay three-fifths of the examination fee. The primary examinations are held at the close of the regular session only. The certificate and the remainder of the examination fee are to be handed to the Secretary at the regular time before the examination. Certificates of having passed in any branch or branches in other Colleges are not accepted by this College.

PRELIMINARY TERM TO SESSION OF 1892.

RECITATIONS AND LECTURES.

A Preliminary Course of Lectures and Recitations on Anatomy, Physiology, Chemistry, Materia Medica, Surgery, Obstetrics and the Principles and Practice of Medicine, will be given, beginning October 30th, 1891, and continue until the following March. Opportunity will be offered for private dissection. Material will be furnished at cost. Daily demonstrations will be made by the Instructor of Anatomy. *The fee for the above Course is \$35.*

Attendance upon this term is optional with the student, and it is not reckoned as a Course of Lectures. Students, however, are earnestly advised to attend, as they are thus better prepared to comprehend the lectures in the Regular Course.

FACULTY PRIZES.

The Faculty have established two Prizes for general proficiency in examination—a first Prize of Fifty Dollars, and a Second Prize of Twenty-Five Dollars. These prizes will be awarded as follows :

The ten students who pass the best examinations for their degree will be allowed to compete in a written examination for the prizes ; of this number, the five who rank highest shall be called Honor Men,

and will receive a *Special Diploma of Honor*, and of these last, those who are deemed worthy shall receive respectively the first and second prizes.

The Honor Men of 1891 were : M. L. Chandler, N. H. Crosby J. H. Linehan, J. D. Tanner, A. T. Halstead.

The first prize was awarded to M. L. Chandler ; the second prize to J. H. Linehan.

FEES FOR THE REGULAR TUITION.

All fees are payable in advance.

MATRICULATION FEE— <i>Payable each Term</i>	\$ 5 00
FEES FOR THE FULL COURSE OF LECTURES BY ALL THE PROFESSORS, (First and Second Year, each,).....	75 00
(Third Year, and subsequent years, each,).....	50 00
SINGLE TICKETS.....	15 00
EXAMINATION FEE, (payable once only and not returnable,)..	25 00
EXAMINATION FEE, Primary Branches, (payable once only and not returnable,).....	15 00
EXAMINATION FEE, Final Branches, (payable once only and not returnable,).....	10 00
DEMONSTRATOR'S FEE, required of every new matriculant, (including Disecting Material, payable but once,).....	10 00

Students who have attended two full courses of lectures in some other regular school or schools are admitted on paying the matriculation fee and \$50.

Students who have already attended one full course in this College and one full course in some other regular Medical School, are admitted on paying the Matriculation fee and \$50.

Graduates of other regular American Medical Schools are admitted on payment of the matriculation fee and \$25.

Foreign applicants for the Medical Degree of this University are admitted on payment of a fee of eight guineas.

Graduates of this school are admitted without fee.

Theological students are admitted on payment of the matriculation fee only, unless intending to graduate in medicine, in which case they will be required to conform to the above conditions.

For further particulars, address the Secretary,

J. H. WOODWARD,
Burlington, Vt.

MEDICAL CLASS, 1891.

STUDENTS.	RESIDENCE.	PRECEPTORS.
E. M. Alger,	Burlington, Vt.	Medical Dept. U. V. M.
Edward Atkinson,	Westmoreland, N. B.	Medical Dept. U. V. M.
C. S. Brigham,	Bakersfield, Vt.	Dr. W. H. Giddings.
J. F. Blair,	Mercersburg, Pa.	Dr. J. L. Blair.
H. L. Bartlett,	Stoneham, Maine.	Dr. C. M. Cooledge.
H. A. Bradbury,	Wynn, Maine.	Dr. C. H. Bradbury.
H. P. Beirne,	Keene, N. H.	Dr. W. E. Moloney.
G. W. Belden,	Burlington, Vt.	Medical Dept. U. V. M.
J. E. Burby,	Fort Edward, N. Y.	Dr. R. A. Linendall.
H. E. Ballard,	Burlington, Vt.	Medical Dept. U. V. M.
W. H. Bennett,	Gardiner, Maine.	Drs. J. M. & B. M. Turner
J. M. Brown,	Burlington, Vt.	Medical Dept. U. V. M.
H. D. Brennan,	Castleton, Vt.	Dr. H. R. Jones.
B. J. Brown, Jr.,	Burlington, Vt.	Medical Dept. U. V. M.
E. H. Bradley,	Lansdowne, Ontario.	Dr. A. Goss.
C. P. Buzzell,	Northwood Ridge, N. H.	Dr. W. D. Hill.
L. B. Bissonnette,	Montreal, P. Q.	Dr. Currier.

STUDENTS.	RESIDENCE.	PRECEPTORS.
H. E. Breckenridge,	Hornellsville, N. Y.	Dr. Baker ; Dr. Green.
E. M. Bonner,	Baltimore, Md.	Univ. Maryland.
E. C. Branch,	Brooklyn, N. Y.	Dr. E. H. Bartlett.
W. N. Brown,	Republic, Michigan.	Dr. I. E. Booth.
C. K. Barlow,	New York City.	Dr. P. Williamson.
M. L. Chandler,	Burlington, Vt.	Dr. Henry C. Tinkham.
Donald Campbell,	Marble Mountain, N.S.	Medical Dept. U. V. M.
S. S. Carruth,	Chelsea, Mass.	Dr. J. E. Kimball.
C. H. Cutler,	Peterboro, N. H.	Dr. J. H. Cutler.
N. H. Crosby,	Brownsville, Maine.	Dr. L. B. Crosby.
R. A. Clark,	Burlington, Vt.	Dr. F. H. Bartlett.
J. N. Coghlan,	Holyoke, Mass.	Dr. C. H. Curran.
P. B. Chandler,	Dorchester, N. B.	Dr. E. B. Chandler.
W. F. Cummings,	Rutland, Vt.	Dr. J. D. Hanrahan.
N. R. Cook,	Jackson, Maine.	Dr. A. E. Kilgore.
E. A. Cardin,	Fall River, Mass.	Dr. G. B. Chagnon.
A. L. Cross,	Swanton, Vt.	Dr. H. R. Wilder.
R. R. Culbert,	Boston, Mass.	Dr. C. W. McDonald.
W. A. Cahill,	Syracuse, N. Y.	Dr. G. Doyle.
W. F. Clarkson,	Brooklyn, N. Y.	Dr. W. F. Kissane.
J. M. Curran,	Cross Roads, Penn.	Dr. T. M. Curran.
E. W. Dunlop,	Sable River, N. S.	Dr. F. N. McMillan.
W. M. Dowlin,	North Adams, Mass.	Dr. H. M. Stafford.
E. E. Dickerman,	Lyndon, Vt.	Medical Dept. U. V. M.
J. F. Donahue,	Waterbury, Conn.	Dr. A. O'Hara.
D. H. Davis,	South Valley, N. Y.	Medical Dept. U. V. M.
J. A. De LaFleur,	Black River, N. Y.	Medical Dept. U. V. M.
F. J. Davis,	Tempe, Arizona.	Dr. J. A. Magee.
G. E. Dixon,	Milton, Vt.	Dr. L. J. Dixon.

STUDENTS.	RESIDENCE.	PRECEPTORS.
W. A. E. Dykeman,	St. Johns, N. B.	Dr. Geo. Harrington.
A. D. Dailey,	Fall River, Mass.	Dr. J. W. McCoughlin.
J. A. Dorval,	Thorndyke, Mass.	Medical Dept. U. V. M.
C. E. Davenport,	Otselic, N. Y.	Dr. E. L. Lamb.
J. G. Denelsbeck,	Bay Head, N. J.	Dr. A. A. Higgins.
A. S. Dillon,	Jamaica, West Indies.	L. I. College.
Burr Decker,	Monterey, N. Y.	Medical Dept. U. V. M.
J. F. Duffy,	Providence, R. I.	Dr. W. Caldwell.
K. A. Enlind,	Lawrence, Mass.	Dr. C. N. Chamberlin.
G. F. Edmunds,	Bristol, Vt.	Dr. H. A. Bogue.
H. A. Elliott,	Rumney, N. H.	Dr. J. W. Heath.
I. C. Eisenberg,	Roumania.	Dr. D. M. Lavinski.
David Epstein,	New York City.	Dr. A. S. Isaacs.
M. E. Fleming,	St. Regis, Falls, N. Y.	Dr. L. M. Wardner.
G. I. Forbes,	West Haven, Vt.	Dr. W. N. Platt.
J. C. Fahey,	Northampton, Mass.	Dr. J. M. Fahey.
C. B. Frothingham,	Lynn, Mass.	Dr. W. W. Wilcomb.
N. P. Freeman,	Mill Village, N. S.	Dr. C. S. Marshall.
P. M. Fitzsimmons,	Boston, Mass.	Dr. J. D. Hanrahan.
Frank Fletcher,	Hopkinton, N. Y.	Dr. I. G. Flood.
I. N. Fowler,	Havelock, N. B.	Medical Dept. U. V. M.
J. D. Finnegan,	Moir, N. Y.	Dr. C. A. Hastings.
G. C. Fordham,	Dundee, N. Y.	Medical Dept. U. V. M.
George E. Ferrin,	Boscawen, N. H.	Dr. E. E. Graves.
E. A. Goodsell,	Burlington, Vt.	Dr. Henry C. Tinkham
William Galvin,	Blackington, Mass.	Dr. E. E. Potter.
T. E. Guild,	Coventry, Vt.	Dr. J. M. Currier.
W. H. Greis,	Lysander, N. Y.	Dr. J. H. Baker.
T. F. Gartland,	St. Albans, Vt.	Dr. J. N. Jenne.
L. H. Gillette,	Fitchburgh, Mass.	Dr. W. H. Pierce.

STUDENTS.	RESIDENCE.	PRECEPTORS.
J. G. Green,	Winooski, Vt.	Dr. S. Patnaude,
C. W. Gardiner,	Batavia, N. Y.	Dr. H. A. Morse.
E. B. Hodskins,	Burlington, Vt.	Dr. E. B. Adams.
C. E. Holton,	Burlington, Vt.	Medical Dept. U. V. M.
B. H. Holmes,	Portsmouth, N. H.	Dr. F. E. Potter.
E. P. Hodgdon,	Gilmanton, N. H.	Dr. G. H. Brown.
F. S. Hamlet,	Brownsville, Me.	{ Dr. D. B. Crosby.
		{ Dr. O. W. Sherwin.
J. R. Hatch,	Guilford, N. H.	Dr. S. Vittum.
G. S. Howard,	Montreal, P. Q.	Dr. Campbell.
H. K. Hintlian,	Central Turkey.	Medical Dept. U. V. M.
W. L. Heath,	Johnson, Vt.	Dr. J. Allen.
A. T. Halstead,	Springfield, Mass.	Dr. L. Gulick.
John Hunter,	Scotland.	Medical Dept. U. V. M.
J. S. Horner,	Littleton, N. H.	Dr. B. F. Page.
D. M. Hooks,	New York City.	Dr. F. P. Wilcox.
O. G. Harrison,	" " "	Medical Dept. U. V. M.
A. L. Hurd,	Brownfield, Me.	Dr. J. B. Wentworth.
H. N. Jackson,	Kingston, Ont.	Dr. J. H. Jackson.
P. C. Jameson,	Brooklyn, N. Y.	Dr. W. H. Hutchinson
J. L. Jardine,	Boston, Mass.	Medical Dept. U. V. M.
G. A. Jameson,	Chateaugay, N. Y.	Dr. I. S. Van Vechten.
W. L. Knowles,	No. Ferrisburgh, Vt.	Dr. H. F. Cram.
H. F. Kallenberg,	New York City.	Medical Dept. U. V. M.
A. C. Kirkham,	" " "	" " "
O. H. Kelsey,	Burlington, Vt.	Dr. P. E. McSweeney.
J. S. King,	Ellenburgh Ctr., N. Y.	Dr. H. H. Reynolds.
L. M. Kauffman,	Kauffman, Penn.	Dr. J. R. Kauffman.
S. S. Kohn,	Paterson, N. J.	Dr. C. H. Scribner.
M. B. Kinsley,	Rome, N. Y.	Dr. H. T. Babcock.

STUDENTS.	RESIDENCE.	PRECEPTORS.
Lawrence Kinsella,	Fair Haven, Vt.	Medical Dept. U. V. M.
Charles D. Kelley,	Victory Mills, N. Y.	Dr. P. E. McSweeney.
E. S. Lane,	Burlington, Vt.	Dr. Henry C. Tinkham
W. A. Lyman,	" "	Dr. B. J. Andrews.
J. H. Linehan,	Island Pond, Vt.	Dr. L. P. Rossier,
W. E. Lazelle,	Plainfield, Vt.	Dr. W. F. Lazelle.
J. L. Leffingwell,	Clayton, Mass.	Medical Dept. U. V. M.
A. J. Lance,	Cabot, Vt.	Dr. W. L. Goodsell.
J. Lapraik,	Madison, Me.	Dr. Hunnewell.
C. S. Lennox,	North Adams, Mass.	Medical Dept. U. V. M.
E. E. Lake,	Haverhill, Mass.	Dr. L. J. Young.
E. E. Lefebvre,	Waterville, P. Q.	Dr. P. Phelan.
U. Laurier,	Manchester, N. H.	Dr. S. Gauthier.
C. E. Lambert,	Salem, N. Y.	Dr. J. Lambert.
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ACKNOWLEDGMENTS.

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The Librarian desires to make special acknowledgment of the following gifts :

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Rev. L. G. Ware's Estate, 180 volumes.

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The Library has received through the bequest of the late Rev. L. G. Ware a fine collection of photographs and prints, about 1000 in all, illustrating some few architectural works and sculptures and many schools in painting.

A very rich collection of fac-similes of antique gems and other *intaglios* and *relievos*, numbering more than 2000 specimens, has recently been presented to the Library by Mrs. Frederick Billings, who bought it for this purpose of Mrs. George P. Marsh. The collection

was formerly owned by Lord Vernon, of whom it was purchased by Mr. Marsh.

The workmanship is exquisite and the copies of the gems are said closely to resemble in color, as in other respects, the originals which are in the *Galleria degli Uffizi* in Florence.

The periodicals in the list subjoined are presented to the Reading Room by their respective publishers :

American Missionary.

Argus and Patriot, Montpelier.

Barre Enterprise.

Bennington Reformer.

Bible Treasury, London.

Brattleboro Phoenix.

Burlington Free Press and Times, daily.

Church Work.

Literary Digest.

Malone Farmer.

Medical Missionary Record.

Missionary Herald.

Morrisville News and Citizen.

Our Dumb Animals.

Our Prison Missionary.

St. Albans Messenger.

St. Johnsbury Republican.

Springfield Reporter.

The Industrialist, Kansas Agricultural College.

The Northwestern Financier.

The Voice, New York.

Travellers' Record.

The Trefoil.

Union Signal, Chicago.

Vermont Watchman, Montpelier.

The Western Druggist.

The Womans' Journal.

Young Men's Era.

The London Chemical Journal is supplied to the Laboratory by Lieut. Geo. B. Peck, Jr., M. D., of Providence, R. I.

MUSEUM.

The following additions have been received at the Museum during the past year:

Mrs. J. H. Spear, Burlington ; Florida reptiles and insects.

Mr. J. L. Sweetland, Burlington ; large whale's tooth, crystals of quartz and other minerals.

Mr. F. E. Dodge, '89, New York City ; a very interesting series of specimens illustrating the various stages in the manufacture of Tartaric Acid.

Mr. G. G. Howe, Burlington , Stone implements.

Miss A. O. Taft, Burlington ; Opium smoking outfit, pipe, cleaning tools, etc. Ancient household articles, baker, flax comb, lantern, etc.

Hon. E. B. Taft; '71, Burlington ; Turkish coffee mill, bomb harpoon, lance harpoon, Apache bow and arrows, bison horn and vertebra. Collection of old coins. Alaskan seal-skin suit.

Mr. H. E. Stevens '70, St. Paul, Minn. ; fine specimens of vertebrate and other fossils from Dakota.

Hon. E. J. Phelps, Burlington ; specimens of Sea Island cotton, in the ball and separated.

Mr. William Couper, Burlington ; a series of the breastbones of eagles, hawks, owls and other birds.

Mr. M. A. Howe, '90, Berkley, Cal. ; Herbarium specimens of rare plants.

Mr. R. M. Catlin, '73, Tuscarora, Nev. ; Ruby silver ore and associated minerals.

Mr. J. B. Bartlett, Shelburne ; a very fine mass of Greenstone filled with radiated crystals of feldspar.

Howard fund, by purchase, specimens of Vermont birds and mammals, mounted. A large and extremely fine collection of stone implements from the Pacific coast, Ohio valley and New England, minerals, meteorites, corals, etc., etc.

Several hundred specimens of Vermont fossils have also been collected by the curator.

Miss Elizabeth Brinton, New York City ; named specimens of Vermont mosses.

Mr. Jackson Miller, Williston ; specimen of wood duck.

AMERICAN SCHOOL OF CLASSICAL STUDIES.

Through the generosity of the following persons, the University has been enabled during the past year to join the league of Colleges and Universities which maintain the *American School of Classical studies in Athens*, an institution which has as its object the study of Classical Archæology and the training of Classical Teachers :

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Norman Williams, '55.

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*Deceased.

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Juniors	49
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ERRATA.

- Page 12.** For George *Thatcher* Cooke read George *Thacher* Cooke.
- “ 12. For *Richmond* Edmund Armstrong read *Richard* Edmund Armstrong.
- “ 13. Add *Frederick Russell Seymour, Ag.*, Williston.
- “ 23. Under Philosophy I., read *Required, first half of Junior Year, three hours.*
- “ 24. Add I., before first course in Political Science.
- “ 32. Under Electrical Engineering II. 1., read *Potential for Potentials.*

CATALOGUE
OF THE
UNIVERSITY OF VERMONT
AND

STATE AGRICULTURAL COLLEGE

BURLINGTON, VERMONT

1892-93

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1894

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CALENDAR.

1892.

28 Sept., Wednesday, A. M. First half-year began.
 Thanksgiving Recess, From Wednesday noon before
 Thanksgiving Day through the
 week.
 Christmas Recess, Including Christmas Day and New
 Year's Day.

1893.

6 Feb., Monday, Mid-year Examinations begin.
 16 Feb., Thursday, Second half-year begins.
 29 Mch., Wednesday to April 4,
 Tuesday, Spring Recess.
 12 May, Friday, Young Ladies' Prize Reading.
 15 June, Thursday, Final Examinations begin.
 24 " Saturday, 8 P. M. Junior Prize Debate.
 25 " Sunday, 8 P. M. Baccalaureate Discourse.
 25 " " 7.30 P. M. Anniversary of Y. M. C. A.
 26 " Monday, Class Day.
 27 " Tuesday, 9 A. M. Meeting of Phi Beta Kappa.
 27 " " 10 A. M. Meeting of Alumni Association.
 27 " " 8 P. M. Address before Alumni Association.
 27 " " 7.30 P. M. Forest Prize Speaking.
 28 " Wednesday, Commencement.
 29 " Thursday, 9 A. M. } Entrance Examinations.
 and 2 P. M. }

SUMMER VACATION.

26 Sept., Tuesday, 9 A. M. } Entrance Examinations.
 and 2 P. M. }
 27 " Wednesday, 8.15 A. M. First half-year begins.
 14 Oct., Saturday, Freshman Prize Entrance Examinations begin.

DEPARTMENT OF MEDICINE.

1893.

26 Jan., Thursday, Lectures begin.
 17 July, Monday, Exercises of Graduation.

HISTORY AND CHARTERS.

“ An Act for the purpose of founding a University at Burlington” was passed by the Legislature of Vermont, Nov. 2nd, 1791, of which the following are the Preamble and First Section :

“ Whereas the education of youth is necessary for the advancement of morality, virtue and happiness, and tends to render a people or State respectable ; to promote which, establishments for Seminaries and Colleges have ever been patronized by all good governments ; and whereas several grants of land have already been made by the State, and private liberal donations have been offered, for promoting so needful an establishment within the same, which demand the attention of this Legislature for laying the foundation for an institution so beneficent to society ; therefore,

Section I. It is hereby enacted by the General Assembly of the State of Vermont, that there shall be and hereby is a College instituted and established at such place in the township of Burlington in the County of Chittenden as the Corporators hereinafter named shall think most convenient for that purpose, to be known and designated by the style of THE UNIVERSITY OF VERMONT.”

A subsequent act gave to the Corporation of the University “ full power, right, and authority to appropriate to the use and benefit of the said University forever, all such lands as have been already granted and reserved by the authority of this State for the use and benefit of a College.”

The Act of Incorporation vested in the Trustees of the University of Vermont full power “ to appoint, elect, support and remove from time to time, all such officers and servants as they shall find necessary ; to direct the studies of the youth ; to establish professorships and professors, and provide for their support ; to make and

establish all necessary rules, regulations and by-laws for the orderly government of said University (provided always that the said rules, regulations and by-laws shall not tend to give preference to any religious sect or denomination whatsoever;) to grant and confer all such degrees, literary titles, honors and distinctions as other Universities, Colleges and Seminaries have done or may of right do; and to do any other thing which shall be found necessary for the government and welfare of such an institution."

With the consent of the Corporation certain changes were made by the Legislature in respect to the number and the mode of election of the trustees of the University by Acts passed Nov. 2nd, 1810, and October 31st, 1823, but these were, with like consent, repealed by the Act of October 30th, 1838, which revived and confirmed the provisions of the original charter, which charter remains in full force at the present time, with such modifications as the Corporation of the University accepted in 1865, in accordance with the provisions of the charter of The University of Vermont and State Agricultural College.

In 1862, largely through the exertions of Hon. Justin S. Morrill, then Representative and since Senator from Vermont, Congress passed an "Act donating public lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts." Under the provisions of this Act, the Legislature of Vermont chartered in 1862 the Vermont Agricultural College, which, failing to receive the support necessary to put it into operation, was by an act approved Nov. 6th, 1865, incorporated with the University of Vermont into one institution by the name of "The University of Vermont and State Agricultural College." This corporation is invested with the property, rights, powers and privileges which belonged to both or either of the corporations so combined, and "shall be and remain a body corporate forever, for the purpose

of carrying out the objects contemplated in the respective charters" of the two institutions.

The "objects contemplated" in the charter of the Vermont Agricultural College are stated in the exact language of the Act of Congress providing for Colleges of Agriculture and the Mechanic Arts, as follows:

"The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

The objects contemplated in the charter of the University of Vermont are stated in the Preamble and Sections as given above.

The charter of The University of Vermont and State Agricultural College requires that "there shall, at all times, be maintained in the institution hereby created, such instruction in the various branches of learning, as is contemplated in the several charters of each of the institutions hereby united; and more particularly including a four years course of studies, similar to such as are generally taught in other colleges and not inferior to that recently taught in said University of Vermont; and in addition to that which is usually taught in other colleges, the instruction in this institution shall include such enlarged facilities, and extended scope and variety in the study of those branches which relate to military tactics, agriculture and the mechanic arts, as shall render the whole instruction in conformity with said act of Congress, as well as with the several charters aforesaid."

Section II of the Charter provides that, for the purpose of receiving property by gift, grant, bequest or otherwise, and for certain other purposes therein specified, each of the original corporations shall be deemed and treated as having continued in life.

Gifts and bequests may therefore be made to (1) The University of Vermont, (2) The Vermont Agricultural College, (3) The University of Vermont and State Agricultural College.

By the provisions of

“An Act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress, approved July second, eighteen hundred and sixty-two,” the institution receives from the United States Treasury an annual appropriation to be applied “only to instruction in Agriculture, the Mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction.”

BOARD OF TRUSTEES.

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ON THE PART OF THE UNIVERSITY OF VERMONT.

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HON. GEORGE GRENVILLE BENEDICT, A. M., *Burlington.*

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ON THE PART OF THE VERMONT AGRICULTURAL COLLEGE.

<p>HON. JUSTIN SMITH MORRILL, LL. D., <i>Strafford.</i></p> <p style="padding-left: 40px;">GARDINER S. FASSETT, <i>Enosburgh.</i></p> <p style="padding-left: 40px;">CASSIUS PECK, <i>Brookfield.</i></p>	<p style="font-size: 4em;">}</p>	<p>1887-93.</p>
<p>HON. CROSBY MILLER, <i>Pomfret.</i></p> <p>HON. REDFIELD PROCTOR, A. M., <i>Proctor.</i></p> <p>HON. EBENEZER JALLS ORMSBEE, A. M., <i>Brandon.</i></p>	<p style="font-size: 4em;">}</p>	<p>1889-95.</p>
<p style="padding-left: 40px;">TYLER M. GRAVES, <i>Underhill.</i></p> <p>HON. CYRUS JENNINGS, <i>Hubbardton.</i></p> <p style="padding-left: 40px;">WALLACE I. ROBINSON, <i>Barton.</i></p>	<p style="font-size: 4em;">}</p>	<p>1891-97.</p>

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TORREY ENGLSBY WALES.**

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TORREY ENGLSBY WALES.**

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EBENEZER JALLS ORMSBEE.
GARDINER S. FASSETT.
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MATTHEW HENRY BUCKHAM, D. D., President.	28 University Place.
JOHN ORDRONAU, M. D., LL. D., Professor Emeritus of Medical Jurisprudence.	New York City.
J. WILLISTON WRIGHT, A. M., M. D., Professor Emeritus of Surgery.	New York City.
WALTER CARPENTER, M. D., Professor Emeritus of the Principles and Practice of Medicine.	228 Pearl St.
REV. HENRY AUGUSTUS PEARSON TORREY, A. M., Marsh Professor of Intellectual and Moral Philosophy.	75 S. Prospect St.
VOLNEY GILES BARBOUR, Ph. B., C. E., Professor of Civil Engineering.	87 N. Prospect St.
GEORGE HENRY PERKINS, Ph. D., Howard Professor of Natural History.	205 S. Prospect St.
REV. JOHN ELLSWORTH GOODRICH, A. M., Professor of Latin.	488 Main St.
ALBERT FREEMAN AFRICANUS KING, A.M., M.D., Professor of Obstetrics and Diseases of Women.	Washington, D. C.
ASHBEL PARMELEE GRINNELL, A. M., M. D., Professor of the Theory and Practice of Medicine, and Dean of the Medical Faculty.	272 Main St.
RUDOLPH AUGUST WITTHAUS, A. M., M. D., Professor of Medical Chemistry and Toxicology.	New York City.
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SAMUEL FRANKLIN EMERSON, Ph. D., Professor of History.	341 Pearl St.

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11

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JULIUS HAYDEN WOODWARD, B. S., M. D., Professor of Materia Medica and Therapeutics, and of Diseases of the Eye and Ear.	162 College St.
*LEWIS JUREY HUFF, Professor of Modern Languages.	
JOSEPH KNOWLTON CHICKERING, A. M., Professor of Rhetoric and English Literature.	25 Colchester Ave.
*JAMES RIGNALL WHEELER, Ph. D., Professor of Greek.	183 S. Prospect St.
ABEL MIX PHELPS, M. D., Professor of the Principles and Practice of Surgery.	New York City.
JOSIAH WILLIAM VOTEY, C. E., Associate Professor of Civil Engineering.	90 N. Prospect St.
HERBERT SIDNEY FOSTER, Capt. 20th Inf., U.S.A., Professor of Military Science and Tactics.	128 Colchester Ave.
HARRY ASAHEL STORRS, C. E., Professor of Electrical Engineering.	316 S. Prospect St.
HORATIO LOOMIS, Sc. D., Professor of Mineralogy.	43 Williams St.
ARTHUR WHITTIER AYER, B. S., Professor of Mechanical Engineering.	138 Colchester Ave.

*Absent on leave.

- LEWIS RALPH JONES, Ph. B., 148 Colchester Ave.
Associate Professor of Natural History.
- WILLIAM C. KITCHIN, Ph. D., 368 S. Union St.
Associate Professor of Comparative Literature,
Professor pro tempore of Modern Languages.
- JOHN BROOKS WHEELER, A. B., M. D., 210 Pearl St.
Adjunct Professor of Surgery.
Professor of Clinical and Minor Surgery.
- HENRY CRAIN TINKHAM, M. D., 234 Main St.
Adjunct Professor of Anatomy, and Demonstrator of Anatomy.
- JACOB CHASE RUTHERFORD, M. D., 198 Pearl St.
Adjunct Professor of Obstetrics.
- CHARLES SMITH BOYNTON, A. M., M. D., 69 Pine St.
Adjunct Professor of Chemistry in the Medical Department.
- J. N. JENNE, M. D., St. Albans, Vt.
Adjunct Professor of Materia Medica and Therapeutics.
-

SPECIAL PROFESSORS IN THE MEDICAL DEPARTMENT.

- STEPHEN MARTINDALE ROBERTS, A. M., M. D., New York City.
Professor of Diseases of Children.
- WILDER LUKE BURNAP, A. M., 151 S. Prospect St.
Professor of Medical Jurisprudence.
- WILLIAM WATKINS SEYMOUR, A. B., M. D., Troy, N. Y.
Professor of Surgical Diseases of Women.
- CONDUCT W. CUTLER, M. S., M. D., New York City.
Professor of Dermatology.
- CHARLES F. BRANCH, M. D., Newport, Vt.
Professor of Sanitary Science and Hygiene.

JOSEPH HATCH LINSLEY, M. D., Professor of Pathology and Bacteriology.	268 S. Union St.
JAMES R. HAYDEN, M. D., Professor of Venereal Diseases.	New York City.
P. M. WISE, M. D., Lecturer on Diseases of the Mind.	Ogdensburg, N. Y.
FREDERICK PETERSON, M. D., Lecturer on Diseases of the Nervous System.	New York City.
W. C. JARVIS, M. D., Lecturer on Diseases of the Throat.	New York City.

INSTRUCTORS.

FREDERICK MERRITT CORSE, A. M., Instructor in Mathematics, Secretary of the Faculty and Registrar.	Office Billings Library.
JOSEPH LAWRENCE HILLS, B. S., Instructor in Chemistry in the Agricultural Department.	101 King St.
JOHN BRAINARD STEARNS, B. S., Instructor in Chemistry.	44 S. Willard St.
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STOCKTON AXSON, A. M., Instructor in English.	St. Paul St.
CARROLL NEIDE BROWN, A. M., Instructor in Greek.	2 Colchester Ave.
HEMAN BETHUEL CHITTENDEN, Instructor in the Agricultural Department.	160 Pine St.
H. B. GURLER, Instructor in Dairying.	De Kalb, Ill.

OTHER OFFICERS.

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Librarian.

PROFESSOR BARBOUR,

Superintendent of Buildings and Grounds.

PROFESSOR PERKINS,

Curator of Museum.

ELLA EVARTS ATWATER, A. B.,

Assistant Librarian.

RICHARD EDWARD ARMSTRONG,

FREDERIC ALBERT WHEELER,

Assistants in the Library.

MATTHEW ADGATE,

FRANK NELSON GUILD,

Assistants in the Chemical Laboratory.

JOSEPH DANA ALLEN,

Leader of the Chapel Choir.

MERRILL MARQUAND HUTCHINSON,

Organist.

FACULTY COMMITTEES.

Library Committee :

PRESIDENT BUCKHAM,

PROFESSOR TORREY,

PROFESSOR PERKINS.

Committee on the Status of Students :

PROFESSOR EMERSON,

PROFESSOR VOTEY.

Military Committee :

PRESIDENT BUCKHAM,
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PROFESSOR MERRILL.

Absence Committee :

PROFESSOR GOODRICH,
PROFESSOR STORRS,
MR. CORSE, *Sec'y*.

Athletic Committee :

PROFESSOR LOOMIS,
PROFESSOR VOTEY,
PROFESSOR AYER.

STUDENTS.

SENIOR CLASS. Classical Students.

NAME.	RESIDENCE.	ROOM.
Allen, Joseph Dana,	<i>Burlington.</i>	142 University Place.
Allen, Lyman,	<i>Burlington.</i>	142 University Place.
Armstrong, Richard Edmund,	<i>Richford.</i>	7. S. College.
Babbitt, Gertrude Adelaide,	<i>Burlington.</i>	60 N. Union St.
Benedict, George Wyllys,	<i>Burlington.</i>	31 S. Prospect St.
Benedict, James Dewey,	<i>Brooklyn, N. Y.</i>	81 S. Prospect St.
Brigham, Mary,	<i>Hyde Park.</i>	446 Pearl St.
Dyer, Edward Horace,	<i>Rutland.</i>	2 S. College.
Ellis, Ira Harwood,	<i>Bethel.</i>	1 N. College.
Farr, Edgar Horace,	<i>Bristol.</i>	11 S. College.
Hazen, William,	<i>Richmond.</i>	4 S. College.
Kilbourn, Henry Jennings,	<i>Racine, Wis.</i>	2 Colchester Ave.
Lamb, Charles Edward,	<i>Burlington.</i>	6 S. College.
Noyes, Harry Albert,	<i>Hyde Park.</i>	138 Colchester Ave.
Petty, Henry Curtis,	<i>Plattsburgh, N. Y.</i>	H. Relief B'l'd.
Pierce, Frances Marcella,	<i>Rutland.</i>	487 Main St.
Pratt, Nathaniel Miller,	<i>Plainfield.</i>	2 N. College.
Rice, Eugene Strausz,	<i>Chester.</i>	10 S. College.
Sherwin, Loyal Ethelbert,	<i>Chester.</i>	20 S. College.
Torrey, Henry Augustus,	<i>Burlington.</i>	75 S. Prospect St.
Wheeler, Frederic Albert,	<i>Fairfax.</i>	11 S. College.

Literary-Scientific Students.

Corse, Lillian Estelle,	<i>Richford.</i>	483 Main St.
Crombie, William Murray,	<i>Burlington.</i>	286 S. Prospect St.
Deavitt, Edward Harrington,	<i>Montpelier.</i>	2 Hickok Place.
Goodrich, John Albert,	<i>Chateaugay, N. Y.</i>	Ethan B'l'd'g.
Hill, Thomas Chittenden,	<i>Charlotte.</i>	Howard Bank Block.

NAME.	RESIDENCE.	ROOM.
King, Margaret Allen,	<i>Cairo, N. Y.</i>	188 Colchester Ave.
Pond, Erasmus Arlington,	<i>Rutland.</i>	84 Pine St.
Stewart, Ralph Aldace,	<i>E. Wallingford.</i>	8 N. College.
Thompson, Oella Azuba,	<i>Hyde Park.</i>	85 Colchester Ave.
Wells, Frank Richardson,	<i>Burlington.</i>	158 S. Willard St.

Engineering Students.

Cudworth, Frank Grant,	<i>Bristol.</i>	78 N. Prospect St.
Evans, John Maurice,	<i>Chateaugay, N. Y.</i>	Maple St.
Hayford, Charles John Fremont,	<i>Johnson.</i>	16 S. College.
Miller, John Elbridge,	<i>E. Barnard.</i>	1 N. College.
Morse, Edmund Curtis,	<i>Cabot.</i>	204 Pearl St.
Sanctuary, Eugene Nelson,	<i>Hinesburgh.</i>	13 S. College.
Wiswell, Leon Keeler,	<i>Hyde Park.</i>	2 N. College.

Chemical Students.

Adgate, Matthew,	<i>Burlington.</i>	1 N. College.
Holbrook, Frederick Amos,	<i>Colchester.</i>	144 S. Willard.

Agricultural Students.

Collins, Herbert Isaac,	<i>Strafford.</i>	17 Exp. Station.
Wheatley, Tenney Hall,	<i>E. Brookfield.</i>	11 Exp. Station.

Special Students.

Root, Ernest Henry,	<i>N. Craftsbury.</i>	13 N. College.
Willard, Arthur Henry,	<i>Grafton.</i>	2. N. College.

JUNIOR CLASS.**Classical Students.**

Armstrong, Egbert Jackman,	<i>Castleton.</i>	6 S. College.
Armstrong, Jabez Eldridge,	<i>Johnsburgh, N. Y.</i>	150 Colchester Ave.
Avery, John Waite,	<i>Jerseyville, Ill.</i>	2 Colchester Ave.

NAME.	RESIDENCE.	ROOM.
Briggs, Clark Cleland,	<i>Burlington.</i>	43 N. Union St.
Cambridge, Walter Harriman,	<i>Grafton.</i>	Howard Relief B'ld'g.
Chittenden, Merritt Darrow,	<i>Burlington.</i>	160 Pine St.
Crombie, Arthur Choate,	<i>Burlington.</i>	236 S. Prospect St.
Dunham, Frank Lee,	<i>Worcester.</i>	3 N. College.
Dunn, Carl Boright,	<i>Abercorn, P. Q.</i>	11 S. College.
Englesby, William Hudson,	<i>Burlington.</i>	112 William St.
French, Calvin Hiram,	<i>Malone, N. Y.</i>	5 S. College.
Heald, Sarah Jennie,	<i>Springfield.</i>	35 Colchester Ave.
Hopkins, William Cyprian,	<i>Toledo, O.</i>	So. Burlington.
Hoyt, Robert Douglas,	<i>Burlington.</i>	204 College St.
Jones, Erwin Byron,	<i>Burlington.</i>	58 S. Willard St.
Pollard, William John,	<i>Peacham.</i>	2 N. College.
Severson, Robert Kilburn,	<i>Burlington.</i>	308 Main St.
Strickland, Edward Dinwoodie,	<i>Buffalo, N. Y.</i>	5 S. College.
Vilas, Martin Samuel,	<i>Winooski.</i>	446 Pearl St.
Wheeler, Edward Myron,	<i>Burlington.</i>	335 S. Union St.
Wright, Bessie Dow,	<i>Burlington.</i>	81 Adams St.
Wright, Fred Spencer,	<i>Barton Landing.</i>	Ethan B'ld'g.

Literary-Scientific Students.

Abbey, Pearl May,	<i>Barre.</i>	489 Main St.
Batchelder, John Davis,	<i>Faribault, Minn.</i>	2 Colchester Ave.
Bates, Mary Russell,	<i>Burlington.</i>	31 Loomis St.
Botsford, Addis Kingsley,	<i>Plattsburgh, N. Y.</i>	184 Main St.
Bottum, Frederick George,	<i>Rutland.</i>	457 Main St.
Boynton, May Olive,	<i>Burlington.</i>	69 Pine St.
Fuller, Ida May,	<i>Waterbury C.</i>	2 Colchester Ave.
Goodrich, Mary Helen,	<i>Burlington.</i>	2 Colchester Ave.
Landt, Katrina Mellen,	<i>Waterbury.</i>	2 Colchester Ave.
Lee, Irene Emily,	<i>Burlington.</i>	89 Hyde St.

STUDENTS.

NAME.	RESIDENCE.	ROOM.
Moody, Inez Eugenia,	<i>Waterbury.</i>	2 Colchester Ave.
Read, Ellen Ruth,	<i>Burlington.</i>	182 Colchester Ave.
Scott, Lillian Agnes,	<i>Burlington.</i>	70 N. Union St.

Engineering Students.

Hayman, Jacob,	<i>Libau, Russia.</i>	14 N. College.
Longe, Bertie Duane,	<i>East Albany.</i>	95 Main St.
Lucia, Daniel Baldwin,	<i>Montpelier.</i>	8 S. College.
Miller, Lawrence Sprague,	<i>Fort Monroe, Va.</i>	4 Hickok Pl.
Sprague, George Keith,	<i>Brookfield.</i>	150 Colchester Ave.
Stevens, Edson Murray,	<i>Jonesville.</i>	5 N. College.
Tracy, Abel Blodgett,	<i>Randolph.</i>	95 Main St.
Young, John Findlay,	<i>W. Glover.</i>	85 Colchester Ave.

Chemical Students.

Freeman, Stephen,	<i>Montpelier.</i>	Howard Relief B'ld'g.
Guild, Frank Nelson.	<i>Greensboro.</i>	248 Colchester Ave.
Knights, Jr., Frederick Mellen,	<i>Burlington.</i>	188 Colchester Ave.
Spaulding, Edward Gleason,	<i>Burlington.</i>	179 Winooski Ave.

Agricultural Students.

Stevens, Charles Edward,	<i>Jonesville.</i>	Exp. Farm.
Stuart, William,	<i>Burlington.</i>	Exp. Farm.

Special Student.

Carpenter, Silas Carl,	<i>Richford.</i>	8 S. College.
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SOPHOMORE CLASS.

Classical Students.

Allen, Marion Shaler,	<i>Brooklyn, N. Y.</i>	471 Main St.
Andrews, Clayton Gerald,	<i>Richmond.</i>	16 N. College.
Burdick, Florence Lucy,	<i>Winooski.</i>	72 Main St., Winooski.

NAME.	RESIDENCE.	ROOM.
Daggett, Wilfred Farr,	<i>Bristol.</i>	181 N. Union St.
Davis, Earle Russell,	<i>Wait's River.</i>	7 N. College.
Deberville, Frederick Barnum,	<i>Hinesburgh.</i>	Ethan Block.
Eastman, Fannie,	<i>Bradford.</i>	85 Colchester Ave.
Hill, Bert Hodge,	<i>Bristol.</i>	181 N. Union St.
Hopkins, Theodore Eli,	<i>Toledo, O.</i>	High School B'd'g.
Hutchinson, Merrill Marquand,	<i>Burlington.</i>	178 S. Prospect St.
Johnson, Grace Agnes,	<i>Burlington.</i>	292 North St.
Jones, Eva Addie,	<i>Burlington.</i>	North Ave.
Randall, Edward Gove,	<i>Poultney.</i>	7 S. College.
Ross, Philip James,	<i>Franklin Falls, N. H.</i>	457 Main St.
Samson, Stewart Leroy,	<i>St. Albans.</i>	160 Pine.
Sharp, Frederick Thompson,	<i>E. Craftsbury.</i>	14 S. College.
Sherburne, Annie Laurie,	<i>N. Pomfret.</i>	489 Main St.
Wheeler, Almon Cassius,	<i>S. Burlington.</i>	Middle College.
Wilson, John Jay,	<i>Bethel.</i>	4 N. College.

Literary-Scientific Students.

Atkinson, Frances,	<i>Newbury.</i>	489 Main St.
Dalrymple, George Hiram,	<i>Vergennes.</i>	Middle College.
Doten, Carroll Warren,	<i>Vergennes.</i>	Middle College.
Hanson, Elida,	<i>Burlington.</i>	Shelburne St.
Lowell, Alverne Percy,	<i>Burlington.</i>	49 Mansfield Ave.
Marshall, William Lawrence,	<i>Brooklyn.</i>	18 S. College.
Purple, Robert H.	<i>Woodstock.</i>	10 N. College.
Saunders, Leslie Manchester,	<i>Dickinson Ot'r, N. Y.</i>	Middle College.
Shurtleff, Harry Clyde,	<i>Montpelier.</i>	18 Lafayette Pl.
Way, Harry Abel,	<i>Burlington.</i>	49 Mansfield Ave.
Wilcox, Grace Lovantia,	<i>Springfield.</i>	85 Colchester Ave.

Engineering Students.

NAME.	RESIDENCE.	ROOM.
Andrén, Karl Augustus,	<i>Beverly, Mass.</i>	471 Main St.
Davis, Hugh,	<i>Rutland.</i>	150 Colchester Ave.
Hatch, Fred Thorburn,	<i>Burlington.</i>	182 Colchester Ave.
Hunt, Leigh,	<i>Brooksville.</i>	15 S. College.
Lane, Walter Orin,	<i>Burlington.</i>	192 S. Union St.
Parker, George Herbert,	<i>Proctorsville.</i>	Exp. Station.
Pratt, John Frederick,	<i>Rutland.</i>	150 Colchester Ave.
Stockwell, Arthur Pierce,	<i>Springfield, Mass.</i>	193 S. Union St.
Thompson, George Zadock,	<i>Woodstock.</i>	10 N. College.
Woodward, Rollin Nathaniel,	<i>Johnson.</i>	5 N. College.

Chemical Students.

Bigelow, Walter Josephus,	<i>Stowe.</i>	7 N. College.
Blodgett, John Henry,	<i>Grafton.</i>	5 N. College.
Peterson, George,	<i>Burlington.</i>	40 S. Willard St.
Sears, Arthur Eldridge,	<i>Northampton, Mass.</i>	138 Colchester Ave.

Agricultural Students.

Hinsdale, George Griswold,	<i>St. George.</i>	16 Exp. Station.
Kalousdian, Nazereth Manoug,	<i>Adana, Asia Minor.</i>	14 Exp. Station.
Parker, George Herbert,	<i>Proctorsville.</i>	17 Exp. Station.
Rising, Charles Marshall,	<i>W. Rupert.</i>	15 Exp. Station.
Stearnes, Oscar Follett,	<i>Windham.</i>	489 Main St.
Webber, Norman Brown,	<i>Thetford Center.</i>	12 Exp. Station.

Special Students.

Johnson, Guirion Hannah,	<i>Burlington.</i>	292 North St.
Maynard, Edward Arthur,	<i>Burlington.</i>	92 Pearl St.
Morse, Harold Russell,	<i>Burlington.</i>	236 S. Prospect St.

FRESHMAN CLASS.**Classical Students.**

NAME.	RESIDENCE.	ROOM.
Allen, Charles Ethan,	<i>Rutland.</i>	150 Colchester Ave.
Anderson, George Pomeroy,	<i>St. Albans.</i>	13 S. College.
Beecher, George Fletcher,	<i>Essex Centre.</i>	71 Winooski Ave.
Blake, John Mason,	<i>Essex Centre.</i>	Essex Center.
Blake, Norris Darling,	<i>Morrisville.</i>	71 Winooski Ave.
Canfield, Thomas Hopkins,	<i>Burlington.</i>	Rock Point.
Chickering, Edward Conner,	<i>Burlington.</i>	25 Colchester Ave.
Colburn, John Edward,	<i>Foster Brook, Pa.</i>	43 N. Union St.
Goodrich, Chauncey Marsh,	<i>Burlington.</i>	483 Main St.
Hanson, Herbert Bill,	<i>Bradford.</i>	415 Pearl St.
Harvey, Erwin Maurice,	<i>West Topsham.</i>	415 Pearl St.
Hazen, Robert,	<i>Richmond.</i>	4 S. College.
Ingalls, Elwin Leroy,	<i>Montgomery.</i>	143 S. Willard St.
Leavens, Annie Bowen,	<i>Passaic, N. J.</i>	483 Main St.
Livingstone, Ernest George,	<i>Berkshire.</i>	20 School St.
Marsh, William Parmelee,	<i>Forest Grove, Or.</i>	19 Converse St.
May, Florence Joanna,	<i>St. Johnsbury.</i>	2 Colchester Ave.
Norton, Elisabeth,	<i>Rutland.</i>	85 S. Willard St.
Prior, Charles,	<i>Ludlow.</i>	Commons Hall.
Roberts, Frederick William,	<i>Burlington.</i>	83 Main St.
Stearns, Joseph Tuttle,	<i>Burlington.</i>	44 Willard St.
Spafford, Mattie Elisabeth,	<i>Rutland.</i>	85 Colchester Ave.
Taylor, Charles Clinton,	<i>Richford.</i>	20 School St.

Literary-Scientific Students.

Amell, Mary Luella,	<i>Burlington.</i>	239 Colchester Ave.
Babbitt, Jessie Ellen,	<i>Burlington.</i>	60 N. Union St.
Bates, Charles Atwood,	<i>Randolph.</i>	16 N. College.
Bingham, Frank Parker,	<i>Titusville, Pa.</i>	88 Grant St.

NAME.	RESIDENCE.	ROOM.
Bosworth, Grace Mabel,	<i>Bristol.</i>	483 Main St.
Buffum, John Harold,	<i>East Dorset.</i>	19 Converse Court.
Clark, Anna May,	<i>Brookfield.</i>	College Farm.
Deavitt, Henry McIntyre,	<i>Montpelier.</i>	2 Hickok Place.
Hibbard, William Samuel.	<i>W. Glover.</i>	S. College.
Keeler, Pearlie L. C.	<i>Essex Center.</i>	489 Main St.
Norton, Ruth Ida,	<i>Bristol.</i>	131 N. Union St.
Parmenter, Julia Winifred,	<i>Brookfield.</i>	2 Colchester Ave.
Peck, Aurelia May,	<i>Brookfield.</i>	2 Colchester Ave.
Scott, Jessie,	<i>Burlington.</i>	70 N. Union St.
Stowe, Fred. Bingham,	<i>Gloversville, N. Y.</i>	61 Mansfield Ave.
Wilder, Henry Lawrence,	<i>Swanton.</i>	61 Mansfield Ave.

Engineering Students.

Bicknell, Dana,	<i>Underhill.</i>	2 Colchester Ave.
Chase, Ernest Henry,	<i>Woodstock.</i>	12 S. College.
Cutter, Alfred Breen,	<i>Marlborough, Mass.</i>	Commons Hall.
Dunham, Clayton Edwin,	<i>Bethel.</i>	6 N. College.
English, Fred Steele,	<i>Woodstock.</i>	10 N. College.
Hagar, Charles H.	<i>Burlington.</i>	337 College St.
Howe, Arthur Otis,	<i>Newfane.</i>	229 Colchester Ave.
King, Nathaniel,	<i>Plymouth.</i>	229 Colchester Ave.
Knox, William John,	<i>Craftsbury.</i>	61 Mansfield Ave.
Lovell, Martland Clair,	<i>Springfield.</i>	2 Colchester Ave.
Parker, Daniel Luman,	<i>Bethel.</i>	6 N. College.
Storrs, George E.	<i>Island Pond.</i>	
Thomas, C. N.	<i>Dodge Corners, Wis.</i>	31 Lafayette Place.
West, Ernest W.	<i>W. Dorset.</i>	3 S. College.
Weston, Sydney Farnsworth,	<i>Cascadeville, N. Y.</i>	61 Mansfield Ave.
Whitney, George Washington Tapley,	<i>Bethel.</i>	6 N. College.

Chemical Student.

NAME.	RESIDENCE.	Room.
Giddings, Harry DeWitt,	<i>Bakersfield.</i>	248 Colchester Ave.

Agricultural Students.

Barrett, Otis Warren,	<i>Clarendon.</i>	16 Exp. Station.
Bickford, Newell Doten,	<i>Cabot.</i>	Exp. Farm.
Boyce, James Wesley.	<i>W. Burke.</i>	19 Exp. Station.
• Dunsmore, George Henry,	<i>St. Albans.</i>	12 Exp. Station.
Fisher, Carl Wallace,	<i>Cabot.</i>	15 Exp. Station.
Kidder, Joseph Benjamin.	<i>Vergennes.</i>	19 Exp. Station.
Sargeant, Homer Jones	<i>E. Corinth.</i>	160 Pine St.
Small, Fred Milo,	<i>Morrisville.</i>	18 Exp. Station.
Smith, Harry Warren,	<i>Swanton.</i>	18 Exp. Station.
Tobin, Philip Chase,	<i>Swanton.</i>	18 Exp. Station.
Tracy, Carl Cyrus,	<i>Randolph.</i>	Exp. Farm.

Special Students.

Darling, Fredreca,	<i>Vergennes.</i>	Colchester Ave.
Douglas, Mary Gertrude,	<i>Burlington.</i>	229 Colchester Ave.
Sabin, George Miller,	<i>Malone, N. Y.</i>	2 Colchester Ave.
Shaw, Harry B.,	<i>Burlington.</i>	253 S. Union St.
Smith, Edith Emma,	<i>Burlington.</i>	415 Maple St.

Instruction is given in the University in :

I. The Department of Arts, which embraces : 1. The usual Classical Course in the Languages, ancient and modern, Mathematics, Physical Science, Mental, Moral and Political Philosophy, Rhetoric, Literature and History, and leads to the degree of Bachelor of Arts; 2. The Literary-Scientific course, in which the studies of the Classical course are pursued with the exception of Greek, and which leads to the degree of Bachelor of Philosophy.

II. The Scientific Departments, embracing the studies required (1.) by the Morrill Act of 1862, which provides that instruction be given not only in "classical and other scientific studies," but especially in "branches of learning relating to Agriculture and the Mechanic Arts;" and (2.) by the Endowment Act of 1890, which provides for instruction in "Agriculture, the Mechanic Arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life."

These Departments are : 1. The Department of Engineering, which includes (a) Civil and Sanitary Engineering ; (b) Electrical Engineering ; (c) Mechanical Engineering.

2. Chemistry.

3. Agriculture.

The degree in each case is Bachelor of Science, see index, *degrees*.

III. The Department of Medicine, leading to the degree of Doctor of Medicine.

ADMISSION.

Candidates for admission to the University must produce satisfactory testimonials of good moral character and must be at least fifteen years of age.

Students coming from another College must present a certificate of regular dismissal from the institution they have left, and furnish satisfactory evidence of proficiency in all the studies—or their equivalents—which have been pursued by the class they propose to enter. For admission to an advanced class, a corresponding increase in age is required, and a thorough knowledge of all the studies that have been pursued by the students of the same class.

Young women are admitted to all the courses in the Department of Arts and Science of the University, upon the same conditions as young men. They are required to room and board in private families approved by the Faculty.

REQUIREMENTS FOR ADMISSION TO THE CLASSICAL COURSE.

Greek. (1) Greek Grammar including Prosody ; (2) Xenophon's *Anabasis*, four books ; (3) Homer's *Iliad*, three books ; (4) Woodruff's *Greek Prose Composition* ; (5) Translation at sight.

Latin. (1) Latin Grammar including Prosody ; (2) The first thirty lessons in Jones's *Latin Prose Composition* ; (3) *Cæsar*, four books ; (4) Cicero, six orations and the *De Amicitia* ; (5) Virgil, six books of the *Æneid* and the *Eclogues*.

In the case of Latin and Greek authors, substitutes will be accepted if they be full equivalents for the work here prescribed.

Teachers are urgently requested to give their pupils practice in reading at sight. They are also urged to have their pupils read aloud *in both Greek and Latin* as much as possible, that the ear may be trained to the sound of the language and that the words may gradu-

ally come to convey a meaning to the pupil's mind immediately and not through their English equivalents.

In the pronunciation of Greek, the rules of Hadley and Allen's Grammar, pp. 4, 5, 7 should be followed.

Mathematics. (1) Arithmetic including the metric system ; (2) Algebra through Quadratic Equations ; (3) Plane Geometry.

English. (1) English Grammar ; (2) Orthoepey ; (3) English Composition, to be based for 1893, upon the following works : Bunyan's Holy War, Shakespeare's As You Like It, Dickens's Christmas Carol, Longfellow's Evangeline, Macaulay's Essay on Milton.

History. (1) Ancient and Modern Geography ; (2) Ancient History ; (3) Greek History to Alexander ; (4) Roman History to Augustus.

The examination will be based upon the Students Series for the East and Greece, and upon Leighton's Rome.

LITERARY SCIENTIFIC COURSE.

The requirements for admission to the Literary Scientific Course are the same as for the Classical course excepting that in place of Greek an equivalent in French, or in German, or in some of the Sciences will be required.

SCIENTIFIC DEPARTMENT.

The Mathematics, English and Geography as specified in the requirements for the Classical Course are required for admission to the Scientific Departments. For admission to the Chemical and Medical Departments, consult the fuller statement of these departments.

Examinations for admission will be held in the *College Building* at the close and at the opening of each college year. See calendar.

ADMISSION BY CERTIFICATES.

Candidates will be admitted to any of the above Departments *without examination*, in case they bring certificates of graduation from Preparatory Schools whose courses of study fully meet the above requirements. If the certificate is defective in respect to any required study, the student will be examined in that study. Certificates must be made out in blank forms furnished by the Secretary of the Faculty. Students admitted by certificate will be regarded as being on probation during the first half year.

ADMISSION OF SPECIAL STUDENTS.

Persons of suitable age and attainments may, by special permission of the Faculty and by the payment of a specified fee, pursue certain studies in connection with the regular college classes without becoming matriculated members of the University. The classes which are open to such students, with the conditions of admission, will be made known upon application to the President. Special Students are members of the University from the time of their admission, but are not candidates for a degree. They enjoy the privileges of the University and are subject to all its regulations.

REGISTRATION.

Every student upon entering the University is required to present his papers to the President on the Thursday preceding the opening of the annual session. Upon approval, he will receive from the President a Certificate of Admission. On the following Saturday the student is to deliver his certificate to the Registrar, and to enter his name upon the University Register. He will receive from the Registrar a Certificate of Registration which is to be delivered to the Treasurer, whereupon he becomes entitled to pay the entrance fee. The Treasurer's receipt is to be returned to the Registrar for record, after which the student will be considered a regular member of the University.

SYNOPSIS OF STUDIES.

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GREEK.

- I.** 1. **Lysias.** Reading, five or six orations, elementary lectures on Athenian Government.
2. **Anacreontics.**
3. **Plato,** Apology and Crito, with collateral reading.
4. **Homer,** Odyssey, four or five books.
5. **Prose Composition.** Exercises based to some extent upon the authors read.

Required Freshman year, four hours.

- II.** 1. **Euripides,** Medea ; introduction to study of the Greek Drama.
2. **Thucydides,** one book. Collateral reading.
3. **Lectures** on the Monuments of the Acropolis.
4. **Sophocles,** Antigone. Lectures on Greek dramatic representation.
5. **Prose Composition.**

Elective Sophomore year, four hours.

[Candidates for Sophomore Honors are required to read in addition one play, and specified portions of Homer and Demosthenes.]

- III.** 1. **Demosthenes,** On the Crown, with some introductory study of Aeschines's oration against Ctesiphon.
2. **Lycurgus,** Against Leocrates, with study of the administration of Lycurgus at Athens.
3. **Drama.** Three plays. Lectures. Theses.

Elective Junior and Senior years, three hours.

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In alternate years III. will be considerably changed by the introduction of some study of Plato or of work in Archaeology, in order that a student who wishes to elect it for two years may do so with profit.

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LATIN.

- I. 1. **Livy**, books xxi and xxii, with history of the second Punic war, and a review of grammar.
 2. **Tacitus**, Life of Agricola, and Germania. Latin synonyms.
 3. **Horace**, Odes and Epodes.
 4. **Prose Composition.**

Required Freshman year, four hours.

- II. 1. **Cicero**, Tusculan Disputations book i, or De Officiis.
 Roman Archaeology.
 2. **Plautus.** }
 3. **Terence.** } with history of the Roman stage.
 4. **Horace**, Epistles.
Catullus.

Elective Sophomore year, four hours.

- III. 1. **Quintilian**, books x and xii, with outline of Latin Literature.
 2. **Horace**, Satires.
 3. **Juvenal.**
 4. **Persius.**
 5. **Early Latin.**
 6. **Latin Hymns.**

Elective Junior and Senior years, three hours.

III. will be considerably changed from time to time by the study of Pliny's or Cicero's Letters, Tacitus (Histories) and Lucretius. This will enable students to elect it profitably in two successive years.

FRENCH.

- I. 1. **Grammar.** Fasnacht, Synthetic French Grammar ; Blouet, Class-book of French Composition, Part I.; Wendling Le Verbe.

2. **Fénelon**, *Les Aventures de Télémaque*.

3. **Racine**, *Athalie*, *Mithridate*.

4. **Cornelle**, *Le Cid*.

French I. or German I. required Sophomore year, four hours.

II. 1. **Syntax**. Lectures (in French), based on the grammars of Mätzner, Plötz and Girault-Duvivier. Blouet, *French Composition*, Part II.

2. **Demogeot**, *Histoire de la Littérature française* (IVe Période pp. 353-664). Lectures on earlier periods of the literature.

3. **Hugo and the Romantic School**, Lectures.

4. **Chateaubriand**, *Atala*.

5. **De Musset**, *Poésies Nouvelles*.

6. **Hugo**, *Ruy Blas*, *Hernani*.

Elective Junior and Senior years, three hours.

GERMAN.

I. 1. **Grammar**. Joynes-Meissner, *German Grammar*, Otto's materials for translating English into German.

2. **German Reader**, Whitney's.

3. **Goethe**, *Hermann und Dorothea*.

4. **Schiller**, *Wilhelm Tell*.

German I. or French I. required Sophomore year four hours.

II. 1. **Syntax**. Lectures (in German). Exercises in conversation based on Grimm's *Märchen*.

2. **Scherer**, *Geschichte der deutschen Litteratur*,—parts selected.

3. **Goethe**, *Iphigenie auf Tauris*; *Faust*, with introductory lectures.

4. Lessing, Laökoon.*Elective Junior and Senior years, three hours.***ENGLISH.****Rhetoric and Composition.** Elementary work; Text-book, Hill's Principles of Rhetoric.*Required, Freshman year, one hour.***II. Composition and Style.** Text-books, Genung's Practical Rhetoric, and Rhetorical Analysis.*Required Sophomore year, three hours.***III. English Literature.** Historical lectures, recitations and brief essays.*Required Junior year, three hours.***IV. English Literature.** Studies in different periods. Collateral reading and essays.*Elective Senior year, three hours.***V. Comparative Literature.** The beginning of Modern Poetry, with special reference to the Sources of Early English Literature.*Elective Junior and Senior years, two hours.*

Members of the Freshman and Sophomore classes are required to give two selected declamations during the year. Original declamations are required of Juniors and Seniors, and during the latter part of Junior year extemporaneous debates are held.

PHILOSOPHY.**I. Logic,** deductive and inductive. Hill's Jevons' The Elements of Logic.*Required Junior year, four hours.***II. History of Philosophy,** ancient and modern. Lectures and text-books.*Ferrier's Lectures on Greek Philosophy.*

- III. Physiological Psychology,** study of physiological conditions of mental States, Text-book, Ladd's Outlines.
Required, Junior year, two hours.
- IV. 1. Psychology.** Lectures.
2. Ethics, Theoretical. Text-book, Janet's Theory of Morals.
3. Theism, or Evidence of the being of God. Text-book, Flint's Lectures on Theism.
Required, Senior year, four hours.
- V. Metaphysics.** The Critical Philosophy. Lectures and text-book. Watson's Philosophy of Kant in Extracts.
Elective, Senior year, two hours.
- VI. Fine Art.** Philosophy of Art.
Lectures and Text-book. J. Torrey's A Theory of Fine Art.
Elective, second half of Senior year, two hours.

POLITICAL SCIENCE.

- I. Elementary Political Economy,** with Laughlin's Mill's, and Francis A. Walker's Political Economy, as text-books.
Required, second half of Junior year, four hours.
- II. 1. Constitutional History,** and Constitutional Law ; the text-book in U. S. Constitution is Cooley. Lectures, and papers on assigned topics.
2. International Law. Lectures.
3. Political Economy, applied to open questions by lectures and discussions.
4. History of Political Economy.
5. Sociology. Lectures.
Required, Senior year, two hours.

HISTORY.

- . **General History.** Lectures and recitations; Text-book, Fisher's Outlines.
Required, Sophomore year, four hours.
 - II. **The French Revolution,** A study of its causes and results.
Topical investigation and collateral reading.
Elective, Junior year, three hours.
 - III. **English Institutions ; the Rise and Development of Parliamentary Government.**
 - IV. **Modern History ; the Modern State ; Democracy ; the Industrial Revolution.**
Elective, Senior year, three hours.
III. and IV. are given alternately.
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A one hour elective course in the History of Religions has been organized during the present year, which is open to all students, but is especially recommended to the upper classes. Persons, not members of the University, who are interested in such study will be admitted to this course on the same conditions as students.

MATHEMATICS.

- I. 1. **Geometry, Solid and Spherical ; with weekly tests and original propositions.** Chauvenet's Geometry.
- 2. **Algebra, advanced ; Binomial and Exponential Theorems, Theory of Equations.** Well's University Algebra.
- 3. **Trigonometry, Plane and Spherical.** Wentworth's Trigonometry.
Required, Freshman year, five hours.
- II. 1. **Trigonometry, Spherical, with applications to the simpler problems in Practical Astronomy and Navigation.** Wentworth's Trigonometry and Young's General Astronomy.

2. **Analytical Geometry**, including Conics, with lectures on the higher plane curves. Text books and lectures.

Elective, Sophomore year, four hours.

Required of all students in Engineering Department.

- III. 1. **Higher Synthetic Geometry**, analytic method, method of loci, symmetry of reciprocal radii. Lectures.

2. **Modern Projective Geometry**. Cremona's Projective Geometry.

Elective, Junior and Senior years, three hours.

- IV. **Differential and Integral Calculus**. Text-books to be announced.

Required of all students in Engineering Department.

[Courses III. and IV. will be given in alternate years to students in the Department of Arts.]

The Honor Examinations for the Sophomore Year will be on the geometrical and algebraical study of complex numbers, with De Moivre's Theorem and the Theory of Equations.

A candidate for Senior Honors may choose his subject from studies in Analytical Geometry, Modern Geometry, Higher Algebra, Differential Equations, Mathematical Physics.

PHYSICS.

- I. 1. **General properties of matter.**
 2. **Dynamics.**
 3. **Acoustics.**
 4. **Geometrical optics.**

Required, first half of Junior year, three hours.

- II. 1. **Heat.**
 2. **Electricity.** } Practical applications.

Elective, second half of Junior year, three hours.

NATURAL SCIENCE.

- I. 1. General Biology.** Lectures ; Laboratory work.*
Elective, first half of Junior year, three hours.
- 2. Biology.** Laboratory work,* with occasional lectures.
Elective, second half of Junior year, four hours.
- 3. Physiology.** Recitations and lectures. Martin's Human Body.
Required, second half of Junior year, three hours.
- II. Biology.** Advanced laboratory work.
Elective, Senior year, four to twelve hours.
- III. Hygiene.** Lectures.
Required, Freshman year, one hour.
- IV. Anthropology.** Recitations and lectures. Taylor's Anthropology.
Elective, first half Senior year, three hours.
- V. Mineralogy.** Descriptive and Determinative. Dana's Manual of Mineralogy.
Elective, first half of Junior year, three hours.
- VI. Geology.** Recitations and lectures. Le Conte's Elements.
Elective, second half of Senior year, three hours.

*In laboratory-work two hours count as one hour of recitation.

Candidates for honors may select from some department of either Biology or Geology a subject for special and original investigation, which must be carried on under the direction of the Instructor; the results must be presented at the close of Senior year in the form of a thesis.

CHEMISTRY.

- I. 1. General Chemistry.** Lectures.
Four hours, first half year.
- 2. Laboratory Work.** Elementary experiments and elementary qualitative analysis.
Six to eight hours, second half year.

*Elective for Sophomores in the Department of Arts,
four hours.*

- II. **Qualitative Analysis**, advanced course. Laboratory work with occasional class meetings and recitations.
Ten to fifteen hours, one half year.

- III. **Quantitative Analysis**. Laboratory work, with class meetings for discussion of methods.
Fifteen hours, one year or longer.

- IV. **Stoichiometry**. Lectures.
Two hours, one half year.

- V. **Industrial Chemistry**.

1. **Assaying**. Ores, furnace products, etc.
One half year. (Hours of work to be assigned by the Instructor.)
2. **Lectures**. Inspection of constructional plans of works, with occasional excursions to manufacturing establishments, when such may be made conveniently.
One half year. (Hours of work to be assigned by the Instructor.)

- VI. **History of Chemistry**. Lectures.
One hour, about eight weeks.

- VII. **Organic Chemistry**.

1. **Lectures**. Theory and Synthesis of Carbon Compounds.
Two hours, one year.
2. **Laboratory Work**. Preparations of compounds, analyses, etc.

[Course VII. is given in alternate years.]

Practical use of the Spectroscope is offered to students who are qualified for that order of work, at some convenient time during the four years.

ENGINEERING.**Drawing.**

- I.**
 - 1. Elementary Projections.
Five hours, until December.
 - 2. Descriptive Geometry.
Five hours, December until April.
 - 3. Shades and Shadows.
Five hours, April until June.
 - 4. Pen Topography and Lettering.
Eight hours, second half year.
- II.**
 - 1. Linear Perspective.
Four hours, until December.
 - 2. Shading and Coloring.
Four hours, December until February.
 - 3. Isometrical Projections.
Four hours, February until April.
 - 4. Detail Working Drawings of Machinery.
Five hours, first half year.
 - 5. Construction of Gear Teeth.
Four hours, second half year.
 - 6. Spherical Projections.
Four hours, April until June.
- III.**
 - 1. Mapping Surveys.
Ten hours, first half year.
 - 2. Detail and Assembly Working Drawings of entire Machines.
Four hours, first half year.
 - 3. Stone Cutting.
Two hours, second half year.
 - 4. Structural Drawing.
Six hours, second half year.

IV. 1. Problems in Designs.

Four hours, second half year.

2. Detail Drawing and Design.

Four hours, first half year.

Surveying.**I. Chain and Compass Surveying. Levelling. Recitations and Field Work.**

Eight hours, second half year.

II. 1. Transit Surveying. Recitations, Field Work and Plotting.

Six hours, first half year.

2. Transit, Solar Compass, Stadia and Plane Table in Topographical Surveying. Recitations, Field Work and Plotting.

Six hours, second half year.

III. Geodetic Surveying. Field Work.

Four Weeks in the Summer Vacation.

IV. Railroad Surveying. Recitations and Field Work.

Six hours, second half year.

V. Higher Surveying and Practical Astronomy. Lectures. Recitations and Field Work.

Six hours, second half year.

Mechanics.**I. 1. Forces and Motion. Recitations.**

Five hours, until December.

2. Stresses in Roof and Bridge Trusses. Recitations.

Five hours, from December until April.

3. Strength of Materials ; Theory of Flexure and Torsion. Recitations.

Five hours, April until June.

- II. Hydrostatics and Hydraulics. Recitations.
 Four hours until April.
- III. Graphical Statics ; Study of Arches, Domes and Retaining
 Walls.
 Five hours, first half year.
- IV. Advanced Bridge Work. Lectures and Recitations.
 Three hours, second half year.

Civil Engineering.

- I. Materials, their properties, preparation and use.
 - 1. Limes, Cements, Mortars, Brick and Stone. Lectures.
 Two hours, first half year.
 - 2. Timber, Iron and Steel. Lectures.
 Two hours, second half year.
- II. 1. Foundations of Structures on Land and in Water.
 Lectures.
 Two hours, until December.
 - 2. Construction of Roads and Pavements ; Railway Construc-
 tion and Equipment. Lectures.
 Two hours, December until second half year.
 - 3. River Improvements ; Harbor and Canal Construction.
 Lectures.
 Two hours, second half year.
- III. Contracts and Specifications. Lectures.
 Two hours, first half year.

Sanitary Engineering.

- I. Water Supply, Sewerage, general principles of Plumbing
 and Heating, with details of construction. Lectures.
 Three hours, second half year.

MECHANICAL ENGINEERING.

- I.** 1. Elements of Mechanism.
Two hours, first half year.
2. Gearing and Machine Tools.
Three hours, second half year.
- II.** 1. Valve Gears and Thermodynamics.
Three hours, first half year.
2. Thermodynamics ; Boilers, Pumps and Injectors.
Three hours, second half year.
3. Laboratory Work ; Engine and Boiler Tests.
Two hours, second half year,
- III.** 1. Dynamics of Machinery.
Three hours, first half year.
2. Locomotive and Marine Engineering.
Three hours, second half year.
3. Machine Design.
Two hours, first half year.
4. Laboratory Work ; Pumps and Power Tests, and Strength of Materials.
Two hours, throughout the year.

Shop-Work.

- I.** 1. Carpentry.
Two hours, first half year.
2. Wood Turning and Pattern Making.
Two hours, second half year.
- II.** 1. Forging of Iron and Steel.
Two hours, first half year.
2. Chopping, Filing and Scraping.
Two hours, second half year.
- III.** 1. Machine Shop Work.
Three hours, entire year, except last four weeks.

2. Moulding and Founding.

Three hours, last four weeks of year.

ELECTRICAL ENGINEERING.**I. Physics and Physical Laboratory.**

Five hours, second half year.

II. 1. Theory of Potential.

Three hours, first half year.

2. Electrical Laboratory.

Two hours, first half year.

III. 1. Electrical Machines and Measuring Instruments.

Three hours, second half year.

2. Electrical Laboratory.

Two hours, second half year.

IV. 1. Technical Applications of Electricity.

Three hours, first half year.

2. Electrical Laboratory.

Two hours, first half year.

V. 1. Construction of Dynamo-Electric Machinery and Transmission of Energy.

Five hours, second half year.

2. Electrical Laboratory.

Three hours, second half year.

AGRICULTURE.**General Agriculture.****I. 1. Fertilizers.**

Five hours, ten weeks, first half year.

2. Soils and Crops.

Five hours, fifteen weeks, December until April.

8. Forage Crops.

Four hours, ten weeks, second half year.

II. 1. Stock Feeding.

Four hours, ten weeks, first half year.

2. Stock Breeding.

Four hours, ten weeks, second half year.

III. Dairying.

Four hours, fifteen weeks, December until April.

IV. 1. Horticulture.

Three hours, second half year.

2. Forestry.

Elective, two hours, first half year.

V. Agricultural Engineering.

Five hours, first half year.

VI. Entomology.

Two hours, second half year.

Veterinary Science.**I. 1. Anatomy of Domestic Animals.**

Two hours, first half year.

2. Physiology of Domestic Animals.

Three hours, second half year.

3. Histology, microscopic.

Two hours, first half year.

II. 1. Diseases of Animals.

Three hours, second half year.

2. Bacterial Diseases of Animals.

Three hours, second half year.

Botanical Science.**I. 1. Plant Growth.**

Three hours, first half year.

2. Botany, systematic.

Two hours, second half year.

II. Biology, microscopic.

Three hours, first half year.

III. Mycology.

Three hours, first half year.

CLASSICAL DEPARTMENT.

FACULTY.

MATTHEW H. BUCKHAM, D. D., *Political and Social Philosophy.*

HENRY A. P. TORREY, A. M., *Intellectual and Moral Philosophy.*

GEORGE H. PERKINS, Ph. D., *Zoology, Botany and Geology.*

JOHN E. GOODRICH, A. M., *Latin.*

SAMUEL F. EMERSON, Ph. D., *History.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics and Physics.*

JAMES R. WHEELER, Ph. D., *Greek.*

CARROLL N. BROWN, A. M., *Greek.*

LEWIS J. HUFF, *Modern Languages.*

WILLIAM C. KITCHIN, A. M., *Modern Languages.*

JOSEPH K. CHICKERING, A. M., *Rhetoric and English Literature.*

STOCKTON AXSON, A. M., *Rhetoric and English.*

FREDERICK M. CORSE, A. M., *Mathematics.*

CAPT. HERBERT S. FOSTER, *Military Science and Tactics.*

ELECTIVE AND REQUIRED STUDIES.

I. Candidates for the degree of A. B., after pursuing a required course of Greek, Latin, Mathematics, and English through the Freshman year, are allowed to elect a certain number of their studies, the number increasing in the later years of the College course. Certain studies are still required of all alike through the course, and each student is required to take such a number of electives as will bring

NOTE.—During the present year, with the idea of regulating the choice of electives by the students, the courses of study offered after Freshman year in the Department of Arts have been arranged in a series of groups. Each student is required to elect one group. Until, however, this system shall become permanently established, it has been deemed advisable not to print the groups in the Catalogue. The required studies have been placed in nearly all the groups.

his total work up to a prescribed number of recitation or lecture hours per week. The abuse to which a system of perfectly free electives is liable is avoided by the requirement of a course which secures a certain degree of completeness and symmetry of discipline, while the number of electives permitted gives room for the development of special talents and the following out of individual predilections. The electives are offered in such a way as to permit extended study of any subject or group of subjects of which the student may wish to make a specialty. For example, Greek, Latin, and Mathematics may be pursued through most of the time during the four years ; French and German for three years ; Physical Science, Literature, History, and the Social, Intellectual, and Moral Sciences, from two to three years.

The required subjects beginning with the Sophomore year, are French or German, History, English Literature, Physics, Physiology, Logic, Political Economy, Psychology, Moral Science, Evidences of Religion. The time given to each subject is indicated in the description of courses and schedule of studies.

The electives embrace advanced studies in Greek and Latin ; advanced French and German, including studies in Comparative Literature ; the higher Mathematics, including Calculus and the New Geometry ; History, Political and Social Science ; English and American Literature ; Chemistry, theoretical and applied, with Laboratory work ; Geology ; Botany ; Zoology ; Biology ; Anthropology ; Metaphysics ; the History of Philosophy ; the theory of Fine Art.

Other subjects, in which classes are likely to be small, such as Anglo-Saxon, Italian, Hebrew, will be offered occasionally, at such intervals as to give all students an opportunity to take such of them as may be desired at some time during their college course.

II. Candidates for the degree of Ph. B. will have the same courses required and the same electives as candidates for the degree of A. B., except that omitting Greek they will begin the study of

French and German one year earlier and will select in the second year from both Sophomore and Junior electives.

III. Persons who may desire to take a short academic course preparatory to the study of medicine may take the first two years of the course leading to the degree of Ph. B., with any of the electives of the entire department for which they have the requisite preparation.

IV. Students in any of the other departments may, by special permission of the Faculty, take a limited number of electives from the Engineering and Chemical departments.

V. It is assumed that the choice of electives will be made by the student with reference to some clear, deliberate purpose, and as the result of consultation with members of the Faculty. In all cases the natural sequence of studies must be observed. The Faculty reserve the right to exclude a student from any course to which his previous studies have not properly led up.

The studies pursued and taught in the Classical Department are divided into seven sections :

1. Languages.
2. Moral and Intellectual Philosophy.
3. Social and Political Science.
4. History.
5. Rhetoric and English Literature.
6. Mathematics.
7. Natural Science.

Electives in Italics.

FRESHMAN YEAR.

FIRST HALF-YEAR.

Greek: Lysias and Anacreontics, Plato's Apology, Prose Composition, four hours.

Professor WHEELER and Mr. BROWN.

Latin : Livy, Tacitus begun, four hours. Professor GOODRICH.
Mathematics : Geometry and Algebra, five hours. Mr. CORSE.
English : Rhetoric and Composition, one hour. Mr. AXSON.
Hygiene : One hour. Professor PERKINS.

SECOND HALF-YEAR.

Greek : Plato's Crito, Odyssey, Prose Composition, four hours.
 Professor WHEELER and Mr. BROWN.
Latin : Tacitus continued, Horace (Odes), four hours.
 Professor GOODRICH.
Mathematics: Algebra and Plane Trigonometry, five hours.
 Mr. CORSE.
English : Rhetoric and Composition, one hour.
 Mr. AXSON.
Hygiene : One hour. Professor PERKINS.

SOPHOMORE YEAR.

FIRST HALF-YEAR.

French : Composition, Fénelon, four hours. Professor KITCHIN.
German : Composition, Andersen's Märchen, four hours.
 Professor KITCHIN.
History : Ancient and Medieval, four hours. Professor EMERSON.
English : Rhetoric and Essays, three hours. Professor CHICKERING.
Mathematics: Trigonometry and Astronomy, four hours.
 Professor DANIELS.
Greek : *Medea of Euripides, Thucydides, Prose Composition,*
four hours. Professor WHEELER.
Latin : Cicero, Plautus, four hours. Professor GOODRICH.
Chemistry: *Lectures and Text-book, four hours.* Professor MERRILL.

SECOND HALF-YEAR.

History: Medieval and Modern, four hours. Professor EMERSON.
German: Composition, Heine, Goethe, three hours.
 Professor KITCHIN.

French : Composition, Racine, three hours. Professor KITCHIN.
English : Literature, Essays, three hours. Professor CHICKERING.
Mathematics : *Analytical Geometry*, four hours. Professor DANIELS.
Greek : *Lectures on the Monuments of the Acropolis, Antigone of Sophocles, Prose Composition*, four hours. Professor WHEELER.
Latin : *Terence, Horace (Epistles,) Catullus*, four hours.
 Professor GOODRICH.
Chemistry : *Laboratory work*, four hours. Professor MERRILL.

JUNIOR YEAR.

FIRST HALF-YEAR.

Logic : Deductive and Inductive, four hours. Professor TORREY.
Physics : Lectures and Text-book, three hours. Professor DANIELS.
English Literature : three hours. Professor CHICKERING.
History of Philosophy : two hours. Professor TORREY.
History : *French Political Institutions*, three hours.
 Professor EMERSON.
Greek : *Orators or Plato*, three hours. Professor WHEELER.
Latin : *Horace (Satires,) Juvenal, Persius*, three hours.
 Professor GOODRICH.
German : *Composition, Goethe*, three hours. Professor KITCHIN.
French : *Poets of the Romantic School*, three hours.

Professor KITCHIN.

Mathematics : *Higher Algebra, Modern Geometry, or Calculus*, three hours. Professor DANIELS.
Biology : *Lectures and Laboratory*, three hours. Professor PERKINS.

SECOND HALF-YEAR.

Political Economy : Text-book and Lectures, four hours.
 President BUCKHAM.
Physiology : Text-book and Lectures, three hours. Professor PERKINS.
English Literature : Three hours. Professor CHICKERING.
History of Philosophy : Two hours. Professor TORREY.

- History: Political Institutions, three hours.* Professor EMERSON.
Greek: Drama, or Lyric and Bucolic Poetry, Archæological Work, three hours. Professor WHEELER.
Latin: Quintilian, Early Latin, Latin Hymns, three hours. Professor GOODRICH.
German: Lessing, three hours. Professor KITCHIN.
French: Poets of the Romantic School, three hours. Professor KITCHIN.
Mathematics: Higher Algebra, Modern Geometry, or Calculus, three hours. Professor DANIELS.
Biology: Laboratory, two hours. Professor PERKINS.

SENIOR YEAR.

FIRST HALF-YEAR.

- Political Science: Text book and Lectures, two hours.* President BUCKHAM.
Psychology: Lectures, three hours. Professor TORREY.
Oratory: One hour. Professor CHICKERING.
Metaphysics: † The Philosophy of Kant, or History of Philosophy, Text books and Lectures, two hours. Professor TORREY.
Anthropology: Two hours. Professor PERKINS.
Mineralogy: Three hours. Professor PERKINS.
English Literature: three hours. Mr. AXSON.
Anglo-Saxon: Two hours. Professor CHICKERING.
**Mathematics: † Higher Algebra, etc., three hours.* Professor DANIELS.
**Latin: † Three hours.* Professor GOODRICH.
**Greek: † Three hours.* Professor WHEELER.
**German: † Three hours.* Professor KITCHIN.
**French: † Three hours.* Professor KITCHIN.
**History: Three hours.* Professor EMERSON.
**Biology: Laboratory, four hours.* Professor PERKINS.

SECOND HALF-YEAR.

Political Science : Two hours.	President BUCKHAM.
Moral Science : Text-book, three hours.	Professor TORREY.
Oratory : One hour.	Professor CHICKERING.
Evidences of Religion : Text-book, three hours.	Professor TORREY.
Geology : <i>Three hours.</i>	Professor PERKINS.
Fine Art : Text-book, <i>two hours,</i>	Professor TORREY.
(Other Electives as named above.)	

Students entering college without Greek, as candidates for the degree of Bachelor of Philosophy, pursue all the subjects of the Classical Department excepting that language, electing instead more work in modern Languages and Science.

In addition to the prescribed studies students are required to elect such a number of courses as shall bring their work up to a specified number of hours per week. The minimum amount is :

For Sophomores, fourteen hours.

For Juniors, fourteen hours.

For Seniors, twelve hours.

*Continue through the year.

†With Juniors.

DEPARTMENT OF ENGINEERING.

FACULTY.

MATTHEW HENRY BUCKHAM, D. D., President, *Political and Social Philosophy.*

VOLNEY G. BARBOUR, Ph. B., C. E., *Civil Engineering.*

GEORGE H. PERKINS, Ph. D., *Natural History.*

JOSIAH W. VOTEY, C. E., *Civil Engineering.*

LEWIS J. HUFF, *Modern Languages.*

WILLIAM C KITCHIN, *Modern Languages.*

HARRY A. STORRS, C. E., *Electrical Engineering.*

ARTHUR W. AYER, B. S., *Mechanical Engineering.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

HORATIO LOOMIS, Sc. D., *Mineralogy.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics and Physics.*

JOSEPH K. CHICKERING, A. M., *English Language and Literature.*

STOCKTON AXSON, A. M., *Rhetoric and Elocution.*

FREDERICK M. CORSE, A. M., *Mathematics.*

HERBERT S. FOSTER, Captain 20th Infantry, *Military Tactics.*

CIVIL ENGINEERING.

Instruction is given by means of lectures, recitations, and work in the field and drawing-room. Technical essays are required at frequent intervals on topics connected with the various subjects as they are taken up. Excursions will be made by the classes to engineering works and work-shops for the study of details and methods of construction.

The studies pursued comprise :

Mathematics, including algebra, geometry, plane and spherical trigonometry, analytical geometry, and the elements of differential and integral calculus; *General Chemistry, Botany, Astronomy,*

Physics, Geology, Mineralogy, French, German, Political Economy and English.

Mechanics, including analytical and graphical determination of stresses in the various kinds of roof and bridge trusses, of the thrust and stability of arches and retaining walls, and of the flow of water in pipes and open channels. For the field work in hydraulics the department is equipped with triangular and rectangular wiers, floats and current meters, which are used by the students in determining the flow of streams.

Drawing, embracing general projection drawing, isometric, perspective, and topographical drawing, shading and coloring, spherical projections and map drawing, plans of surveys, ornamentation and lettering, and the detail and working drawings of structures in wood, iron and stone. This work is carried on throughout the entire four years.

Engineering Construction, including the general properties of building material, as stone, cements, mortar, brick, wood and the metals, the construction of foundations in water and on land, and of superstructures and tunnels, of highways and city streets, of railroads, canals, water works, drainage and sewerage works, and the improvements of harbors and rivers. In connection with the study of materials, tests of the strength of cements, wood, stone, iron and steel are made. For this work the department has a 2,000 pound Riehle cement tester, and a 50,000 pound Riehle general testing machine fitted for tensile, compressive or transverse tests, with a Henning & Marshall electric micrometer for measuring elongations.

Surveying, both theory and practice. The theory of instruments, and all the operations of surveying, laying out work, and computing, are explained in detail. The Summer School of surveying affords abundant opportunity for becoming familiar, by actual work in the field, with the methods of work and the use and adjustment of the instruments. The classes make surveys of fields, topographical sur-

veys, surveys of rivers and harbors, surveys for roads and railroads, including running in curves, cross-sections, staking out, contouring, topography. The instrumental outfit includes compasses, levels, transits, plane tables, surveying camera, barometers and the usual equipment of smaller instruments. Maps and profiles of the work done in the field are made by the students, and the areas of fields, the cuts and fills, and the quantities of earth to be moved in the construction of roads, are computed.

Sanitary engineering, including the subjects of sewerage, sewage disposal, water supply, the plumbing, heating and ventilation of buildings.

Attention is also given to the preparation of *Specifications* and *Contracts*.

In bridge work the theory of stresses, and the details of construction of the various classes of bridges are taken up. Drawings and blue prints of recent constructions from leading bridge companies are used to illustrate modern practice in this work.

The library and reading room are well furnished with engineering literature, the reading room being supplied with many of the American and foreign engineering periodicals.

The special studies of the department may be taken as a graduate course, occupying two years. Young men who are so situated as to be unable to take full work, but who would be glad to receive instruction in special branches, may, by permission of the President and on giving evidence of sufficient preparation, join the classes in those studies, but they cannot be candidates for a degree.

SUMMER SCHOOL OF SURVEYING.

The field work of the summer vacation heretofore confined to the Junior Class will be merged into a Summer School of Surveying; this school to be located near one of the large bays of Lake Champlain and to continue in session for one month. Attendance upon this will

be required of the students in civil engineering in the Sophomore and Junior classes, and permission may be granted to a student from any other class or department desiring to attend. Any young man not a member of the University, if properly fitted for the work, will be admitted to the school upon application.

The work of this school will be given in detail in the bulletin to be issued later.

For any member of the University there will be a fee of five dollars for incidental expenses, and for any one not a member there will be in addition to this a tuition fee of twenty dollars.

Text-books and books of reference.—Davies's Surveying ; Searle's and Henck's Field-books ; Johnson's Surveying ; Clarke's Geodesy ; Haupt's Topography ; Wellington's Railway Location ; Wright's Adjustment of Observation ; Merriman's Least Squares ; Publications of the U. S. Coast and Geodetic Survey ; Weisbach's Mechanics of Engineering ; Cotterill's Applied Mechanics ; Rankine's Civil Engineering ; Latham's Sanitary Engineering ; Fanning's Water Supply ; Merriman's Hydraulics ; Smith's Hydraulics ; Burr's Elasticity and Resistance of Materials ; Thurston's Materials of Engineering.

FRESHMAN YEAR.

FIRST HALF YEAR. *Mathematics*.—Geometry and Algebra, five hours. *Chemistry*.—Lectures, four hours. *Drawing*.—Elementary projections and Descriptive Geometry, five hours. *English*.—Rhetoric and Composition, one hour. *Hygiene*.—Lectures, one hour.

SECOND HALF YEAR. *Mathematics*.—Trigonometry and Surveying, five hours. *Descriptive Geometry and Shades and Shadows*, five hours. *Drawing*.—Topography and Lettering, four hours. *Hygiene*.—Lectures, one hour. *English*.—one hour. *Surveying*.

VACATION.

Summer School of Surveying, one month.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Mathematics*.—Analytical Geometry and Calculus, five hours. *Physics*.—three hours. *French or German*.—four hours. *Drawing*.—Shading and Tinting, and Perspectives, four hours. *Surveying*.

SECOND HALF YEAR. *Mathematics*.—Calculus, three hours. *Astronomy*.—two hours. *Physics*.—three hours. *French or German*.—four hours. *Drawing*.—Isometrical Projections and Spherical Projections, four hours. *Surveying*.

VACATION.

Summer School of Surveying, one month.

JUNIOR YEAR.

FIRST HALF YEAR. *Mechanics*.—Forces and Motion ; Stresses in Bridge and Roof Trusses, five hours. *French or German*.—Technical Reading, two hours. *Drawing*.—Mapping of Surveys, four hours. *Mineralogy*.—three hours. *Engineering Construction*.—Materials of construction, three hours.

SECOND HALF YEAR. *Mechanics*.—Stresses in Bridge and Roof Trusses ; Strength of Materials ; Theory of Flexure and Tension, five hours. *Engineering Construction*.—Materials of construction three hours. *Railroad Engineering*.—Lectures and Field Work, three hours. *Geology*.—three hours. *Drawing*.—Stone Cutting, Structural Drawing, two hours.

SENIOR YEAR.

FIRST HALF YEAR. *Mechanics*.—Hydrostatics and Hydraulics, four hours. *Graphical Statics*.—Study of Arches, Domes, and Retaining Walls, five hours. *Contracts and Specifications*.—two hours. *Engineering Construction*.—Foundations, Roads and Pavements, Railroads, two hours. *Drawing*.—Detail Drawing and Designing, two hours.

SECOND HALF YEAR. *Engineering Construction.*—Rivers, Harbors and Canals, two hours. *Sanitary Engineering.*—Water supply, Sewerage, Plumbing, Heating and Ventilating, three hours. *Mechanics.*—Advanced Bridge Work, three hours. *Mathematics.*—Least Squares, Higher Surveying and Practical Astronomy, three hours. *Theses.*

MECHANICAL ENGINEERING.

The instruction in Mechanical Engineering is intended to furnish the student with such training as will enable him to solve most advantageously the problems which arise in the practice of his profession, namely, those relating to the generation and transmission of power, and its application to the arts. The fact is recognized that such training cannot be gained in the recitation and lecture rooms alone, and in consequence a considerable portion of the student's time is spent in the drawing-room and workshops, and in the engineering laboratory.

No strictly professional subjects are taken up in the Freshman year, but much time is devoted to mathematics and drawing, these being considered the most important factors in the work of the following years. The Sophomore year is devoted to the more elementary subjects of the profession, the Junior year almost wholly to steam engineering, and the Senior year to machine design and to advance and special lines of professional work.

Shop Equipment: The carpenter and pattern shop contains, in addition to carpenter's benches, and a full line of tools for manual work, six wood-turning lathes, an eight inch pattern-maker's lathe, circular saw, and scroll saw. The foundry is supplied with a cupola furnace, brass furnace, core-oven and accommodations for six students in moulding. The forge shop contains forges, anvils, a hand drill, and all the hand tools necessary for instruction in this branch. The

machine shop is equipped with filing and chipping benches, three engine lathes, a hand lathe, a planer, two upright drills, a milling machine, a grindstone, and emery wheels. A shaper, and a grinding machine will shortly be added.

Power is furnished to the shops by a twenty-five horse power Harris-Corliss engine, and steam, both for heating and power is supplied by a fifty horse power tubular boiler.

FRESHMAN YEAR.

FIRST HALF YEAR. *Mathematics*.--Algebra and Solid Geometry, five hours. *Chemistry*.--Lectures, four hours. *Drawing*.--Elementary Projection and Descriptive Geometry, five hours. *English*.--Rhetoric and Composition, one hour. *Hygiene*.--Lectures, one hour.

SECOND HALF YEAR. *Mathematics*.--Trigonometry and Surveying, five hours. *Drawing*.--Descriptive Geometry, five hours. *Chemistry*.--Laboratory, two hours. *English*.--one hour. *Hygiene*.--one hour. *Shopwork*.--Carpentry, two hours.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Mathematics*.--Analytical Geometry, five hours. *Mechanical Engineering*.--Elementary Mechanism, two hours. *Drawing*.--Details of Machinery, one hour. *Physics*.--Lectures, three hours. *French or German*.--three hours. *Shopwork*.--Woodturning and Pattern Making, two hours.

SECOND HALF YEAR. *Mathematics*.--Calculus, four hours. *Mechanical Engineering*.--Mechanism, Gear Teeth and Machine Tools, three hours. *Drawing*.--Details of Machinery, and Construction of Gear Teeth, two hours. *Physics*.--Heat and Electricity, Lectures, three hours. *French or German*.--three hours.

JUNIOR YEAR.

FIRST HALF YEAR. *Mechanical Engineering*.--Valve Gears and Thermodynamics, three hours. *Mechanics*.--General Statics, Roof

and Bridge Trusses, five hours. *Drawing*.—Detail and Assembly Drawing of Machines, two hours. *French or German*.—two hours. *Shopwork*.—Forging, two hours.

SECOND HALF YEAR. *Mechanical Engineering*.—Thermodynamics, Boilers, Pumps and Injectors, three hours. *Mechanics*.—Strength of Materials, five hours. *Drawing*.—Problems in Design, two hours. *Mechanical Engineering Laboratory*.—Engine Tests, two hours. *Shopwork*.—Forging, Chipping and Filing, two hours.

SENIOR YEAR.

FIRST HALF YEAR. *Mechanical Engineering*.—Dynamics of Machines, three hours. *Machine Designs*.—Lectures and Drawing Room, two hours. *Mechanical Engineering Laboratory*.—Engine and Boiler Tests, two hours. *Shopwork*.—Machine Shop, three hours.

SECOND HALF YEAR. *Mechanical Engineering*.—Locomotive and Marine Engineering, three hours. *Mechanical Engineering Laboratory*.—Pump and Power Tests, and Strength of Materials, two hours. *Shopwork*.—Machine Shop, Moulding and Founding, three hours. *Theses*.

ELECTRICAL ENGINEERING.

The course in Electrical Engineering is designed to fit students for practical electrical work. The leading subjects of study are Mathematics, Mechanical Engineering, and Electricity, but some work in Literature, History and Modern Languages will also be required.

The technical studies are of two kinds, theoretical and practical or experimental. Preparatory to these, during the earlier years the student receives training in Mathematics, Chemistry, and Physics. Draughting work is pursued during the first three years, by a progressive series of exercises leading to problems in machine designing

and including the making of working drawings, blue prints, etc. During the latter part of Sophomore year and throughout Junior and Senior years the work is conducted in the physical, electrical and engineering laboratories, and is intended to give the student scientific training. The study of Mechanics, with appropriate laboratory work, is taken up in Junior year and is continued during Senior year in special lines. Steam, also, and Mechanical Engineering are important subjects of study in the Electrical Engineering work. In general, a student follows nearly the same line of study in Electrical as in Mechanical Engineering, except that a part of the shop work and mechanical laboratory work is omitted to give place to special subjects in Electrical Engineering. These subjects which begin with Junior year include the theory of Potential Electrical Measuring Instruments, Dynamo-Electric Machinery, etc., with laboratory work such as comparative tests of batteries, efficiency tests of dynamos, etc.

Original investigation will be permitted when deemed beneficial to the student, chiefly as an aid in the preparation of the graduating thesis. Technical essays involving a study of different authorities and of the latest published articles are frequently prepared by each student and presented for discussion in the class room. The library is well supplied with electrical and other scientific papers, and with standard works in electricity.

The electrical equipment includes, galvanometers of recent design for accurate work, sets of standard resistance coils, a Wheatstone bridge, Thomson's electrical balance of wide range, also his graded voltmeter and electrometer, besides much apparatus suitable for the use of the less experienced students. A dynamo, specially designed, and provided with extra armature and field coils, enables the student to learn by actual tests the relative merits of different types of "direct current" arc and incandescent dynamos. There are also, two dynamos of standard makes, viz:— an Edison 100-light, and a

Thompson Houston 4 arc light machine; all these are used in generating electricity for the lamps which light the engineering building and shops, and for charging the secondary battery, as well as for tests of lamps, motors, etc. Sixty accumulators—mostly of the Julien type, and many varieties of primary batteries are available for experiments. It is expected that an "alternating current" dynamo with accessories will soon be procured.

FRESHMAN YEAR.

FIRST HALF YEAR. *Mathematics*.—Algebra, Solid Geometry, five hours. *Chemistry*.—Lectures, four hours. *Drawing*.—Elementary Projections and Descriptive Geometry, five hours. *English*.—Rhetoric and Composition, one hour. *Hygiene*.—one hour.

SECOND HALF YEAR.—*Mathematics*.—Higher Algebra, Trigonometry and Surveying, five hours. *Drawing*.—Descriptive Geometry, five hours. *Chemistry*.—Laboratory, four hours. *English*.—Rhetoric and Composition, one hour. *Hygiene*.—Lectures, one hour.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Mathematics*.—Analytical Geometry, four hours. *Mechanical Engineering*.—Elementary Mechanism, two hours. *Drawing*.—Details of Machinery, one hour. *Physics*.—Lectures, four hours. *French or German*.—four hours. *Shopwork*.—two hours.

SECOND HALF YEAR. *Mathematics*.—Calculus, three hours. *Mechanism*.—Gear Teeth, and Machine Tools, three hours. *Physics*.—Heat and Electricity, three hours. *French or German*.—four hours. *Physical Laboratory*.—two hours. *English*.—Technical essays, one hour. *Drawing*.—two hours.

JUNIOR YEAR.

FIRST HALF YEAR. *Electricity*.—Theory of Potential, three hours. *Steam Engineering*.—Valve Gears and Thermodynamics, three hours. *Mechanics*.—General Statics, five hours. *Drawing*.—Detail and Assembly Drawings of Machines, two hours. *Physical Laboratory*.—two hours. *Shopwork*.—Forging, two hours.

SECOND HALF YEAR. *Electricity*.—Electrical Machines and Instruments, three hours. *Mechanics*.—Strength of Materials, five hours, *Steam Engineering*.—Thermodynamics, Boilers, etc., three hours. *Drawing*.—Problems in Design, two hours. *Physical Laboratory*.—two hours. *Shopwork*.—Chipping and Filing, two hours.

SENIOR YEAR.

FIRST HALF YEAR. *Electrical Engineering*.—Technical Application of Electricity to the Telegraph, Telephone, and Electric Light, three hours. *Mechanics*.—Hydrostatics and Hydraulics, four hours. *Mechanical Engineering*.—Dynamics of Machines, three hours. *Physical Laboratory*.—Electrical Testing, two hours. *Shopwork*.—Machine Shop, three hours.

SECOND HALF YEAR.—*Electrical Engineering*.—Construction of Dynamo Electric Machinery and Transmission of Energy, three hours. *Mechanics*.—Study of Prime Movers and Power Plants, two hours. *Physical Laboratory*.—Electrical Testing, and Research, three hours. *Advanced Physics*.—Memoirs, etc., two hours. *Shopwork*.—Machine Shop, two hours. *Theses*.

DEPARTMENT OF CHEMISTRY.

FACULTY.

MATTHEW H. BUCKHAM, D. D., President, *Political and Social Philosophy.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

HORATIO LOOMIS, Sc. D., *Mineralogy.*

GEORGE H. PERKINS, Ph. D., *Natural History.*

HENRY A. P. TORREY, A. M., *Logic, Ethics and Theism.*

SAMUEL F. EMERSON, Ph. D., *History.*

LEWIS J. HUFF, *Modern Languages.*

WILLIAM C KITCHIN, Ph. D., *Modern Languages.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics and Physics.*

JOSEPH K. CHICKERING, A. M., *English Language and Literature and Elocution.*

FREDERICK M. CORSE, A. M., *Mathematics.*

HARRY A. STORRS, C. E., *Electrical Engineering, Drawing.*

JOHN B. STEARNS, B. S., *Instructor in Chemistry.*

STOCKTON AXSON, A. M., *English and Rhetoric.*

HERBERT S. FOSTER, Captain 20th Infantry, *Military Tactics.*

In this Department, the student, after attending about sixty lectures and recitations in General Chemistry, enters the laboratories where he pursues graded and systematic work, beginning with a schedule of experiments illustrating fundamental principles and cultivating familiarity with the common elements and their compounds. From the outset quantitative methods are followed, as far as practicable.

Qualitative Analysis is next studied. The work includes the use of the spectroscope and qualitative examination of commercial products. Lectures and recitations are maintained.

After completing Qualitative Analysis, Quantitative Analysis is begun, the student proceeding through the simpler determinations to more difficult analyses. The course embraces gravimetric and volumetric methods with applications to analysis of commercial products. Occasionally the students meet together and present statements of work done in the laboratory with discussion of methods, etc. In this way, each student may derive benefit from the work done in the laboratory by the entire class.

In the Junior or Senior year Organic Chemistry is taken up both in the classroom and in the laboratory. This course involves the preparation of organic compounds and their analysis. Students of ability will be encouraged to undertake original investigations under the special supervision of the head instructor.

Lectures are given upon Industrial Processes and these lectures are supplemented with excursions to manufacturing establishments. In the third year facilities are offered, and instruction is given, in Crystallography, Mineralogy, and Assaying of Ores by both fire assay and wet assay. A short course of lectures on the History of Chemistry is given.

BOOKS OF REFERENCE IN CHEMISTRY.—Graham-Otto's *Lehrbuch der anorganischen Chemie*; Gmelin-Kraut's *anorganische Chemie*; Allen's *Commercial Analysis*; Battershall's *Food Adulteration*; Percy's *Metallurgy*; Eggleton's *Metallurgy*; Lunge's *Sulphuric Acid and Alkali, Coal Tar and Ammonia Industries*; Fresenius's *Quantitative Analysis*; Fresenius's *Qualitative Analysis*; Sutton's *Volumetric Analysis*; Roscoe's *Treatise on Chemistry*; Kolbe's *Lehrbuch der organischen Chemie*; Payen's *Précis de Chemie industrielle*; Wagner's *Chemical Technology*; Watts's *Dictionary of Chemistry*; *Journal of the London Chemical Society*; *Zeitschrift für analytische Chemie*; *Berichte der deutschen chemischen Gesellschaft*; *American Journal of Chemistry*; *Chemical News*.

FRESHMAN YEAR.

FIRST HALF YEAR. *Required Studies*—Chemistry Lectures, four hours. Mathematics, five hours. Drawing, four hours. English, one hour. French, four hours.

SECOND HALF YEAR. *Required Studies*.--Laboratory, six to eight hours. Mathematics, five hours. English, one hour. French, four hours.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Required Studies*—Laboratory, ten to fifteen hours. Physics, three hours. German, four hours. English, two hours. *Elective Studies*—Analytics, three hours. History, four hours. French, four hours.

SECOND HALF YEAR. *Required Studies*—Laboratory, fifteen hours. German, four hours. English, two hours. *Elective Studies*—Mathematics, History or French as in first half year. (Students are required to take one elective throughout the year).

JUNIOR YEAR.

FIRST HALF YEAR. *Required Studies*—Laboratory, including Mineralogy and Blow-pipe Determinations, eighteen hours. Stoichiometry, two hours. English, two hours. *Elective Studies*—German, three hours. Calculus, two hours.

SECOND HALF YEAR. *Required Studies*—Laboratory, including Assaying, eighteen hours. English, two hours. Physiology, three hours. *Elective Studies*—German or Calculus as in first half year. (Students are required to take one elective throughout the year).

SENIOR YEAR.

FIRST HALF YEAR. *Required Studies*—Laboratory, eighteen hours. Organic Chemistry Lectures, two hours. English, one hour.

SECOND HALF YEAR. *Required Studies*—Laboratory. Organic Chemistry Lectures, two hours. Industrial Chemistry. History of Chemistry. Geology, three hours. Theses.

NOTE: Organic Chemistry lectures are usually given to Juniors and Seniors together, in alternate years.

Certain of the studies of the Senior Year in the Classical Department may be optional with a corresponding amount of laboratory work throughout this year.

It is desirable that applicants for admission to full standing in the Chemical Department as candidates for its degree should have had the regular classical course—the usual preparation for college—at some school whose certificates are recognized by this University. In case of deficiency in Latin or Greek or in both of those languages in the preparatory course, the applicant may present himself for examination in French or German or in both; and satisfactory attainments in the elements of these languages will be accepted as substitution for Greek and Latin.

Students showing proper qualifications may be admitted to a special course in Chemistry by permission of the President and of the Professor of the Department; but such students cannot receive the degree.

DEPARTMENT OF AGRICULTURE.

FACULTY.

MATTHEW H. BUCKHAM, D. D., President, *Political and Social Philosophy.*

WELLS W. COOKE, A. M., *Agriculture.*

LEWIS R. JONES, Ph. B., *Natural History.*

JOSEPH L. HILLS, B. S., *Chemistry.*

FRANK A. RICH, V. S., *Veterinary Medicine.*

GEORGE H. PERKINS, Ph. D., *Natural History.*

ARCHIBALD L. DANIELS, Sc. D., *Physics.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

HARRY A. STORRS, C. E., *Electrical Engineering, and Drawing.*

ARTHUR W. AYER, B. S., *Mechanical Engineering.*

FREDERICK M. CORSE, A. M., *Mathematics.*

LEWIS J. HUFF, *Modern Languages.*

WILLIAM C KITCHIN, Ph. D., *Modern Languages.*

STOCKTON AXSON, A. M., *Rhetoric and Elocution.*

HEMAN B. CHITTENDEN, A. M., *Agriculture.*

H. B. GURLER, *Dairying.*

HERBERT S. FOSTER, Captain 20th Infantry, *Military Tactics.*

The work in the Agricultural Department is intended to give the student both the theoretical and the practical knowledge necessary to make a success of farming, and at the same time to include enough of mathematics, literature, science, and philosophy for a good general education.

The studies of the course are as follows :

Agriculture has the leading place and is studied continuously from the commencement of Sophomore year. The subject of crops is treated with relation to the different kinds, their value and uses, methods of cultivation, relation to soil and water, and the principles

and practice of their fertilization. Preparation for the more thorough understanding of the subject is made by a year's study of plant growth, and of chemistry with laboratory work. Stock feeding and breeding are taught by lectures and text book, and abundant opportunity for illustration is found in the stock at the Experiment Station barns, as well as in the records of experiments. Exceptional facilities for instruction in dairying are afforded by the new creamery. Both deep setting and separator methods are in constant use, and the student becomes familiar with the various systems and expert in manipulating the apparatus. Horticulture is taught by lectures, and especially by practical work. A greenhouse with four rooms is devoted to raising vegetables and the investigation of the diseases of farm crops. The numerous successive crops grown give the students valuable experience in transplanting, potting, ventilating, fumigating, grafting, budding, and slipping. The orchard has an assortment of the various large and small fruits. Students get practical experience also in the preparation of the land and the planting of the crops in the spring, and return in time to aid in the harvesting. Ensilage crops are grown for filling the three silos.

Veterinary Science is a required study through three-fourths of the course, and elective the rest of the time. The student learns first the general structure of domestic animals by examination of charts and museum specimens and by dissection of the animals themselves. The physiology of domestic animals is next studied; then the microscopic structure of the various parts. The common diseases and their remedies are discussed in lectures, and free clinics are held for studying these diseases in the living animals. Contagious diseases are studied from the standpoint of bacteriology and inoculations made on animals obtained for the purpose.

Plant Growth includes a three years' course of study in the structure of plants, their growth, fertilization, relation to the air, water and soil, their classifications and identifications, their micro-

scopic structure, their diseases, both fungous and bacterial, and the various methods of spraying, and the different chemicals used in combatting these diseases. Eleven large microscopes with accessories, a full line of spraying apparatus, two rooms in the greenhouse and a large collection of dried and alcoholic specimens furnish ample facilities for thorough practical work.

Mechanics. The students in the Agricultural Department are required to take shop-work in forging, chipping, filing and scraping of iron and steel, in moulding and founding, in carpentry, wood-turning and pattern-making. They have also recitations and lectures on the elements of mechanism.

The work in *Mathematics* includes Solid Geometry, Advanced Algebra, Trigonometry and Land Surveying.

Natural Science. More or less extended courses are taken in *Chemistry, Entomology, Mineralogy, Geology* and *Physics*.

During the last two years of the course students are allowed to select studies from any of the courses of the University.

The Library is well supplied with standard works in the various departments of Agriculture and the leading agricultural journals are found in the reading room. Students have also the advantage of the presence of the State Agricultural, Experiment Station.

Students in the Agricultural Department are subject to the same regulations and requirements as other students, except that residents of Vermont are not required to pay tuition. There is an opportunity for several students to defray a part of their expenses by work.

Text Books and Books of Reference : Special Report on Diseases of the Horse, U. S. Dept. of Agriculture ; Billings' Animal Diseases and Public Health ; Cattle and Dairy Farming ; Miles' Stock Breeding ; Stewart's Feeding Animals ; A. J. C. C. Herd Register ; Holstein Herd Book ; Ayrshire Herd Book ; Storer's Agriculture ; Wyatts's Phosphates of America ; Weed's Insects and Insecticides ; Bailey's Horti-

culturist's Rule Book ; Beal's Grasses of North America ; Agricultural Science ; Experiment Station Record ; Insect Life ; Journal of the Royal Agricultural Society ; Reports and Bulletins of Experiment Stations.

AGRICULTURAL COURSE.

FRESHMAN YEAR.

FIRST HALF YEAR. *Agriculture*.—Plant Growth, three hours. *Veterinary Work*.—Anatomy of Domestic Animals, two hours. *Mathematics*.—Geometry and Algebra, five hours. *Chemistry*.—Lectures, four hours. *English*.—Rhetoric and Composition, one hour. *Hygiene*.—Lectures, one hour.

SECOND HALF YEAR. *Agriculture*.—Botany, two hours. *Veterinary Work*.—Physiology of Domestic Animals, three hours. *Mathematics*.—Trigonometry and Surveying, five hours. *Chemistry*.—Laboratory, four hours. *English*.—Rhetoric and Composition, one hour. *Hygiene*.—Lectures, one hour.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Agriculture*.—Fertilizers, ten weeks, five hours. Soils and Crops, eight weeks, five hours. *Biology*, three hours. *Histology*, two hours. *Mechanical Engineering*.—Mechanism, two hours. Shopwork, two hours. *English*, three hours.

SECOND HALF YEAR. *Agriculture*.—Soils and Crops, seven weeks, four hours. Forage Crops, ten weeks, four hours. *Entomology*, two hours. *Diseases of Animals*, three hours. *Mechanical Engineering*.—Mechanism, three hours, Shopwork, two hours. *English*, three hours.

JUNIOR YEAR.

FIRST HALF YEAR. *Agriculture*.—Stock Feeding, ten weeks, four hours. Dairying, eight weeks, four hours. *Mycology*, three

hours. *Physics*, three hours. *English*, two hours. *Electives*.—*Logic*, *History*, *French* or *German*.

SECOND HALF YEAR. *Agriculture*.—*Dairying*, seven weeks, four hours. *Stock Breeding*, ten weeks, four hours. *Bacteriological Diseases of Animals*, three hours. *Horticulture*, three hours. *English*, three hours. *Electives*.—*History*, *Political Economy*, *French* or *German*.

SENIOR YEAR.

FIRST HALF YEAR. *Agricultural Engineering*, five hours. *Mineralogy*, three hours. *English*, two hours. *Elective*.—*Forestry*, *Political Science*, *Electrical Engineering*, *French* or *German*.

SECOND HALF YEAR. *Geology*, three hours. *English*, two hours. *Original Investigation for Thesis*. *Electives*.—*Political Science*, *Sanitary Engineering*, *French* or *German*.

DAIRY SCHOOL.

Among the late additions to the equipments of the Agricultural Department is a Creamery where during the past two years has been held a four weeks' Dairy School. This is designed to teach in a practical manner the manufacture of butter with the latest and most improved apparatus. In addition to the regular students, several hundred visitors witnessed the operations and inspected the apparatus.

STUDENTS IN THE DAIRY SCHOOL.

Herbert Winfred Ballard,	<i>Georgia.</i>
Frank Amasa Bellows,	<i>Essex Centre.</i>
John Vernon Clifford,	<i>Pittsford Mills.</i>
Michael Frank Donahue,	<i>Essex Junction.</i>
James Donahue,	<i>Essex Junction.</i>
Fred Atwater Drew,	<i>South Burlington.</i>
Orange Parkhurst Dunn,	<i>Andover.</i>

George Osburn Elms,	<i>Lisbon, N. H.</i>
Dean Wallace Fisher,	<i>Cabot.</i>
Thomas John Fitzgerald,	<i>West Swansea, N. H.</i>
Truman Gilson,	<i>Sharon.</i>
Edward Gordon,	<i>Pearl.</i>
Seth Gordon,	<i>Chazy, N. Y.</i>
David Adelbert Grant,	<i>Franklin.</i>
Charles Hastings,	<i>Springfield.</i>
Edson Keith Hill,	<i>Danville.</i>
Frank Lawrence Hudson,	<i>Chelsea.</i>
Ichabod Addison Isham,	<i>Williston.</i>
Wilbur Austin Landon,	<i>Johnson.</i>
Moses Arthur Maynard,	<i>Burlington.</i>
Young Godfrey Nay,	<i>Johnson.</i>
Joba Smith Northrop,	<i>Fairfax.</i>
Charles Morris Page,	<i>East Corinth.</i>
J. Edwin Plunket,	<i>Colchester.</i>
James D. Riley,	<i>Franklin.</i>
Willie James Riley,	<i>Franklin.</i>
Carl John Robinson,	<i>Westford.</i>
Jurrebb John Sartwell,	<i>North Georgia.</i>
Warren Willis Saxton,	<i>Beaver.</i>
Earnest Alfred Sturtevant,	<i>East Fairfield.</i>
Guy Smith,	<i>Boston, Mass.</i>
Bert Lewis Sweeney,	<i>North Georgia.</i>
Frank Talcott,	<i>Williston.</i>
Lyman Beecher Watros,	<i>Hunt's Corners, N. Y.</i>
Charles Henry Weed,	<i>Essex Junction.</i>
Henry Otis Whitney,	<i>Williston.</i>
Albert E. Wilkinson,	<i>Winthrop, N. Y.</i>

SHORT COURSES IN AGRICULTURE.

Students who do not wish to take the full four years' course may take a special course of one year, or of two years, selecting such studies as they are fitted to pursue. Such students will receive certificates of proficiency, but are not candidates for a degree.

MILITARY INSTRUCTION.

In accordance with an act of Congress, an officer of the United States Army is stationed at the University as Professor of Military Science and Tactics, and all male students, except those in the Medical Department, are required to take part in military drill and instruction two hours each week. The military exercises are so ordered as not to interfere materially with other college duties.

The United States Government furnishes breech-loading rifles, with ammunition, for infantry drill, and two three-inch guns, with ammunition and equipments, for artillery practice, so that the student, while pursuing the usual college curriculum, has an opportunity to become familiar with the practical details of organizing and drilling troops and manipulating fire-arms. A uniform is worn during drill.

BATTALION ORGANIZATION.

The students are organized into a battalion of two companies, under the army officer on duty at the University as Commandant. Appointments are based upon soldier-like qualities and attainments. In general, the officers are taken from the Senior Class, the sergeants from the Junior Class, and the corporals from the Sophomore Class.

Commandant, Herbert S. Foster, Captain, 20th U. S. Infantry.

Adjutant, John M. Evans.

Sergeant Major, William C. Hopkins.

Drum Major, Marion S. Allen.

Color Sergeant, Frederick M. Knights.

1780, 1781, 1782

1783, 1784, 1785

1786, 1787

1788, 1789, 1790

1791, 1792, 1793

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1842, 1843, 1844

1845, 1846, 1847

1848, 1849, 1850

1851, 1852, 1853

1854, 1855, 1856

1857, 1858, 1859

1860, 1861, 1862

1863, 1864, 1865

RULES AND REGULATIONS.

EXAMINATIONS.

At the close of each half year students are examined in the studies of that half year. The examinations are written, or oral, or both, at the discretion of the Instructor. A record is kept of the results of these examinations and a transcript of each student's record is sent to his parent or guardian.

Students who fail in the regular examination in any subject will be allowed to take a re-examination in that subject one year from the time of failure.

Students who fail in the re-examination will cease thereupon to be candidates for a degree.

In case of Seniors, all delinquencies up to the close of Junior year must be made up by the end of the first half of Senior year. Those who fail to make up their delinquencies by that time will cease thereupon to be candidates for a degree.

RELIGIOUS SERVICES.

The institution, while not connected with any particular denominational body, and having members of many communions in its board of instruction, aims to impress religious truths and obligations upon all students. A responsive religious service is held every morning in the College Chapel, which the students are required to attend.

A flourishing Young Men's Christian Association of students is maintained, and is in close union both in sympathy and co-operative work with the Young Men's Christian Association of the city. The numerous churches of the place give to the students hospitable welcome to their services and activities. A voluntary Bible class of students is conducted by the President on Sunday afternoons in the College building.

HONOR EXAMINATIONS.**FOR SENIORS.**

For the benefit of Students who wish their names to appear on the Honor List [see below] at graduation in recognition of extra work done by them in some special subject or subjects, special Honor Examinations will be held shortly before Commencement in the following subjects : Greek, Latin, French, German, English, History, Philosophy, Political Science, Mathematics, Biology, Chemistry.

It is required that any student who desires to present himself for this examination shall make written application to the Faculty not later than November 1st. A candidate before presenting himself for examination must have taken all the regular courses offered in the subject in which he is to be examined. He must further have passed the Sophomore Honor Examination [see below] in that subject, if such examination shall have been held, unless specially excused. A candidate must also show *general* good standing in all his work.

FOR SOPHOMORES.

Sophomores who wish their names to appear on the Honor List at Commencement will present themselves for the special Honor Examinations held shortly before the close of the academic year. They are privileged to choose from: Greek, Latin, French, German, and Mathematics.

It is required that any student who desires to present himself for this examination shall make written application to the Faculty not later than November 1st. A candidate before presenting himself for examination must have taken all the regular courses offered in the subject in which he is to be examined, unless specially excused, and he must have attained a high rank in those courses. This examination shall be open also to Juniors.

The amount and nature of the extra work specially covered by any Honor Examination shall be determined by the instructor who

has it in charge. It is required that the student attain a high standard of excellence at the examination.

In place of and as equivalent to an Honor Examination the instructor may, if he pleases, accept a thesis from a student upon some subject which shall have been assigned.

HONOR LIST.

There shall be published on the morning of Commencement Day in each year an Honor List containing (1st) the names of students who attain grade A in three-fourths* of their work throughout the college course and do not fall below grade B in anything; and (2nd) the names of students who pass the special Senior Honor Examination offered in any subject. Further, in case a student shall attain grade A in three-fourths of his work and shall not fall below grade B in anything, and in addition shall pass the special Senior Honor Examination offered in any subject, he may be awarded *Double Honors*.

The Honor List shall contain also the names of students who pass the special Sophomore Honor Examination offered in any subject. It shall contain further the names of all from the several classes to whom prizes have been awarded during the year, and the names of those appointed to speak at the Junior Prize Debate and on Commencement Day. To this list may be added the names of those who, for these occasions, have presented essays of unusual merit, but who for any reason have not been appointed to deliver them in public.

The Honor Lists will be published on the bulletin board, in the Billings Library, and in the annual catalogue, and copies will be printed for sale.

DEGREES.

For the degrees of Bachelor of Arts and Bachelor of Philosophy see page 25.

*The reckoning shall be made on the basis of the rank-report for each half year.

DEGREES OF
BACHELOR OF SCIENCE, CIVIL ENGINEER,
ELECTRICAL ENGINEER AND MECHANICAL ENGINEER.

The Degree of Bachelor of Science in *Civil Engineering*, or in *Electrical Engineering*, or *Mechanical Engineering*, is conferred upon students in the Engineering Department who shall complete the courses of study corresponding respectively to these titles.

The Degree of Bachelor of Science in *Chemistry* is conferred upon the completion of the work required by the Department of Chemistry.

The Degree of Civil Engineer may be conferred upon Bachelors of Science of this University, who have taken the Bachelor's degree for work in Civil Engineering, if they furnish satisfactory evidence that they have pursued further technical studies for at least one year, and in addition have been engaged in professional work in positions of responsibility for another year.

The first of the above requirements may be satisfied by pursuing at the University, under the direction of the Faculty, a prescribed amount of study for a time, not necessarily consecutive, equivalent to a college year. If the candidate does not reside at this University, his course of study must be approved in advance by the Professor of Civil Engineering, and he must prepare a satisfactory thesis on some engineering topic, to be presented together with a detailed account of his professional work, one month at least before the date of the annual Commencement at which he expects to receive his degree.

The condition upon which the Degrees of Electrical Engineer and Mechanical Engineer are conferred upon Bachelors of Science of this University, who have taken these degrees for work done in Electrical Engineering and Mechanical Engineering, are analogous in character and in amount to those given for the Degree of Civil Engineer.

In the Agricultural Department the degree is Bachelor of Science in Agriculture.

THE DEGREE OF MASTER OF ARTS.

1. The degree of Master of Arts may be conferred upon resident graduates of one year's standing of this or any other reputable college, and upon non-resident graduates of two years' standing of this University, who shall pursue a course of liberal study (not professional) subject to the approval of the Faculty.

2. Candidates for the A. M. degree shall be required to present a thesis upon some branch of liberal study pursued since graduation, and to pass an examination before the Faculty.

3. The thesis must be presented at least two months before Commencement, and be approved before the candidate shall be admitted to examination.

4. The thesis must be written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of authors consulted. A copy of the same shall be deposited in the University Library.

5. The examination shall be both written and oral, and copies of examination papers shall be kept on file at the University Library. The examination shall be conducted by a committee of the Faculty, who shall appoint the time and place of examination, decide upon the merits of the candidate, and, if they deem him worthy, recommend him to the Trustees for graduation.

THE DEGREE OF DOCTOR OF PHILOSOPHY.

The degree of Doctor of Philosophy is conferred, not for proficiency in miscellaneous studies, nor for the faithful discharge of prescribed work within a given period; but solely as certification of attested ability for independent investigation.

The object in offering the degree is to encourage original research

into some branch of learning and to develop the ability to go to the sources of knowledge in Science, Literature, Art or Philosophy, and to establish upon the authority of the sources some noteworthy truth.

It will be absolutely necessary therefore for the candidate to give evidence of this power by the original treatment of a suitable subject in a written thesis, and by creditably sustaining a critical examination, both written and oral, in one principal and one subsidiary subject.

The degree may be conferred upon resident and non-resident candidates alike, but only after a three years' course of study under competent direction and subject to the approval of the Faculty.

The University offers no regular graduate courses, but members of the Faculty will superintend the work of candidates for the degree who may wish to pursue their studies at the University.

Further requirements are as follows :

1. All college graduates are eligible for the degree, but a ready working knowledge of French and German will be indispensable in all, and of Latin in most cases.

2. The thesis must be presented by the opening of the second half year in February, and must be approved before the candidate shall be admitted to examination.

3. The thesis must be legibly written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of the authors consulted. A copy of the thesis shall be deposited in the University Library.

4. The fee for the degree is \$25.

Resident candidates will be charged in addition an annual tuition fee of \$100. Non-resident candidates will be charged, for verification of thesis and examination, \$75.

Students who are not candidates for a degree may be awarded Certificates of Proficiency in recognition of the work which they have done.

EXPENSES.

Tuition per annum	\$60 00	\$60 00
Library, Catalogues and Commencement.....	9 00	9 00
Room Rent <i>with care of rooms</i> , suites accommodat- ing 2, 3, or 4, for each student.....	11 50	80 00
Single rooms, <i>with care</i> , \$18.00 to \$28.00.		
Contingent expenses for printing, services, repairs, etc.....	9 00	9 00
Reading Room	2 00	2 00
Total of College Bills.....	\$91 50	\$118 00
Board without rooms, \$2.50 to 3.50 per week, 37 weeks.....	\$92 50	\$129 50
Fuel, lights and washing.....	20 00	80 00
	<u>\$204 00</u>	<u>\$272 50</u>

The students' rooms are furnished at the expense of the University. Students need to provide only carpets, mattresses, and bed clothing. The beds are furnished with wire mattresses. All rents include care of room by college servants. Fuel and lights are estimated on the supposition that two students occupy one room. Good board with room may be obtained in private families at \$3.50 to \$4 50 a week. Other expenses, for clothing, travelling, books, stationery, society and class taxes, etc., vary with the circumstances and habits of the student. Those who pursue the Laboratory Course must also pay a fee of \$15.50 each half year for chemicals, gas, etc., besides breakage.

Payment of the College Bills is required in advance for the first term, and in advance for each subsequent term unless a bond, satisfactory to the Treasurer, in the sum of three hundred dollars, has been lodged with him to secure their payment; in which case the term bill becomes due at the end of the term. Students temporarily absent from the University are charged as if present. Students entering an ad-

vanced class are required to pay one-half of the back tuition, unless from another college.

The Central Vermont and Wells River railroads carry students for fare at mileage rates.

BOARDING HALL.

A Commons Hall is located on the College grounds at which good table board is furnished to students at cost. The rate of board at present prices of provisions is from \$2.50 to \$3.00 per week.

SCHOLARSHIPS.

Scholarships, affording aid to Students of limited means, to the amount of tuition, have been endowed as follows :

The Washburn Scholarships, twelve in number, by Daniel Washburn, M. D., of Stowe, for the benefit of young men studying for the Christian ministry, or, in default of such applicants, of other deserving young men.

The Louisa H. Howard Scholarships, seven in number, by Miss Louisa H. Howard, of Burlington.

The Sarah B. Jacobs Scholarships, seven in number, by Mrs. Sarah B. Jacobs, of Boston, for the benefit of graduates of Brigham Academy, at Bakersfield, Vt.

The Bertman Scholarship, by John Bertman, Esq., of Salem, Mass.

The Green Scholarship, by Horace Green, LL. D., of New York City.

The Fairbanks Scholarship, by the Hon. Erastus Fairbanks, of St. Johnsbury.

The Parker Scholarship, by the Rev. Charles C. Parker, D. D., 1841, in memory of himself and son, Charles Edmund Parker, 1867.

The Buckham Scholarship, by George Buckham, Esq., of New York City, by annual payment.

The Westford Scholarship, by the Hon. L. P. Poland, LL. D., of St. Johnsbury.

The Converse Scholarship, by John H. Converse, 1861, of Philadelphia.

The Lawrence Barnes Scholarship, for the benefit of one young woman, by annual payment.

The Crombie and Morse Scholarship, for the benefit of one young man, by annual payment.

The Edwin Wright Marsh Scholarship, endowed by Charles P. Marsh, Esq., 1839, of Woodstock, in memory of his son, of the class of 1872, for the benefit, in the first instance, of students from the town of Weathersfield, Vt.

The Rich Scholarship, by Charles W. Rich, Esq., 1836, of St. Albans.

The Rich Scholarship, by the same, for the benefit, first, of students from the town of Swanton, Vt.

The Isle LaMotte Scholarship, by N. S. Hill, Esq., of Burlington, for the benefit of students from Isle LaMotte, and failing such, from Craftsbury.

The class of 1861 Scholarship, endowed, and made available in 1891.

The Shaw Scholarship, by Hon. William G. Shaw, of Burlington, of the class of 1849.

Several other classes are undertaking to endow scholarships, but none of them are as yet available.

Appointments are made to these scholarships by the Faculty from term to term, and are conditioned on the attainment of a certain grade of scholarship and on exemplary conduct.

The endowment of additional scholarships would enable the University to extend its benefits to those who could not otherwise afford the expense of a four years' maintenance in College. The minimum

endowment is one thousand dollars. The annual payment of \$60 relieves one student from the payment of tuition alone ; of \$80, from the payment of tuition and incidental fees.

STATE SCHOLARSHIPS.

Thirty State Scholarships, covering tuition and incidental expenses in the Classical or Scientific Departments, are now available. Nomination to these scholarships rests with the Senators from the several counties, to whom application should be made.

THE JEDEVINE FUND.

now available in part, is loaned in small sums to "poor and deserving students" in the academic and scientific departments, who are residents of Vermont. The loans must be well secured, and must be repaid within a specified time after the student leaves college. Applications may be made to the treasurer of the University.

PRIZES.

PRIZES IN ELOCUTION.

By gift from Dr. William E. Forest, New York City, class of 1847, prizes of \$25, \$15 and \$10, are offered to members of the Sophomore and Freshman classes for the best declamation of passages in oratorical prose.

FRESHMAN PRIZES.

Mr. Charles P. Marsh, of Woodstock, of the class of 1839, has instituted three prizes of \$25 each, to be awarded to candidates for admission to the Freshman class who shall pass the best examinations in Greek, in Latin, and in Mathematics.

Examinations will take place Saturday, October 13, 1894.

PRIZES FOR PROGRESS.

A friend of the University offers a prize of \$25 to be awarded annually at the end of the Junior year to the student who shall have

made the greatest progress in studies during the three years of the College course.

PRIZE DEBATE.

Mr. John H. Converse, 1861, has established the "Converse Debate Prizes" of \$60 as first prize and \$25 as second prize, to be awarded, in accordance with regulations to be made by the faculty, to contestants from the Junior class in a public debate held in connection with the exercises of Commencement.

THE PHELPS PRIZE.

A prize of Fifty Dollars in gold, endowed in memory of the late Edward Haight Phelps, C. E., class of 1874, will be awarded by the Faculty each year at Commencement to a graduate of that year in Civil Engineering who shall have exhibited conspicuous merit in professional studies and high and noble traits of personal character. A special certificate will accompany the Prize, indicating the conditions upon which it has been awarded. In case no award shall be made in any year, the same amount of money will be expended in the purchase of books on the subject of Civil Engineering for the use of the department.

THESIS PRIZE.

A prize of Twenty-Five Dollars is awarded to the member of the Senior class in the Civil Engineering department presenting the best thesis.

HOWARD PRIZE.

Mrs. Hannah T. Howard, of Burlington, has left by will \$2,500, the income of which is to be awarded by the University and the Burlington High School jointly in prizes to the pupils of the respective institutions. The specifications and terms under which the prizes will be offered will be announced at a later time.

THE FLINT BEQUEST.

The Flint Bequest of \$50,000, by Hon. Edwin Flint, of Mason City, Iowa, of the class of 1826, will become available during the current year, and will be devoted in accordance with the terms of the bequest to the maintenance of a professorship in "Natural and Technic Science" and to the increase of the endowment of the Marsh Professorship of Intellectual and Moral Philosophy.

THE LIBRARY.

The Library of the University, selected with special reference to the several departments of study, contains 32,170 volumes, besides the 12,479 volumes that form the library of the late Hon. George P. Marsh, a collection of the highest value in the departments of Philology, European Literature and History, and Physical Geography. This collection is the gift of the late Hon. Frederick Billings of Woodstock, and is deposited in a room especially provided and elegantly appointed to receive it. The whole Library has been carefully arranged by subjects, on the Dewey system, with accession and shelf-catalogues. A card catalogue on the dictionary plan is in progress, being already complete for the subjects, Literature, Philology, History, Industrial Arts, Ethics, Philosophy, Religion and portions of Natural Science. A full catalogue of the Marsh collection, by authors and subjects, has been published during this last year.

The beautiful and commodious Billings Library, erected at a cost exceeding \$150,000, with a shelving capacity of 100,000 volumes, contains the general library of the University and the special collections. The apse, originally designed for the Marsh collection, has been appropriated to the use of the reference library and reading room.

The gift of \$10,000 which Mr. Billings made for the increase of the Library, is now being expended, and several thousand volumes have already been added.

The income from the bequest of Miss Maria Loomis, of Burlington, of the sum of \$10,000, has become available for the purchase of books.

The Library is open eight hours daily on week days for consulting and drawing books, and for two hours on Sunday afternoons. The reading room of the Library is supplied with the leading scientific and literary periodicals. Persons not connected with the University have free use of the Library for consultation, and, on special permission from the President or Librarian, are allowed to draw books. Students have also the use of the Fletcher Free Library, a collection of over 20,000 volumes for loan and reference, which is open daily.

THE MUSEUM.

The Museum building is open to visitors throughout the year. The collections, though not large, contain many fine and rare specimens. On the first floor are mounted mammals, including nearly all native in this State, and a few foreign species, several hundred interesting specimens of birds, representing most of those found in eastern North America, among them some of the rarest of the water birds; a good series of the eggs of American birds; a small collection of skeletons and skulls and other objects illustrating Vertebrate Zoölogy. In wall cases on this floor are several thousand specimens of the minerals of America and Europe, some of them exceptionally valuable. Of these especially worthy of notice are the specimens of sulphur and the minerals associated with it in Sicily, which were obtained by the late Hon. G. P. Marsh, and by him given to the Museum. There are also excellent series of specimens illustrating the various forms of quartz and lime. The more common metallic ores, iron, lead, copper, silver, etc., are also very well represented. In this room there has been recently placed a quite complete and valuable set of the volcanic products of Vesuvius, and another of the crystalline rocks of Europe,

over five hundred specimens in all, which were obtained and presented to the Museum by the Rev. Edward Hungerford. There is also a complete set of the rocks of Vermont, which for lack of room is only in part displayed in open cases. Here is also the magnificent bas-relief from one of the palaces of Nimroud, which was given to the Museum by Mr. John H. Converse.

On the second floor of the building are cases containing specimens illustrating Invertebrate Zoölogy—a fine collection of shells and smaller collections of sponges, corals, etc., with a beautiful series of glass models representing marine forms which cannot be preserved for exhibition because of the delicacy of their structure. In this room are several thousand examples of the work in copper, stone and pottery of the ancient inhabitants of Vermont. Similar objects from many other parts of the country, including a series of jars and other objects of baked clay from pre-Columbian graves in Costa Rica, are exhibited in other cases. Along the west side of the room are several cases containing the remarkably fine Read collection of arms, articles of dress, utensils, and ornaments of the Sioux Indians of the Northwest. In the wall cases of this room is the Palæontological collection, in which all the geological formations of America and Europe are more or less fully represented. Several hundred examples of the wood of North and South American forest trees and a large Herbarium are also placed in this room.

In addition to the collections named, the Museum possesses a fine series of ancient Greek and Roman coins, as well as coins of modern Europe and Asia and of the United States. There is also an alcoholic collection of American fishes and reptiles and a set of anatomical models.

THE MECHANICAL BUILDING.

The University has recently completed the construction of a group of buildings suitable for the lecture rooms and workshops re-

quired for giving instruction in both Mechanical and Electrical Engineering.

The buildings consist of a *machine and carpenter shop*, a *foundry and forge shop*, and a building for *recitation and lecture rooms*. This latter building is of brick, sixty feet long and thirty-five feet wide, three stories high with a high and well lighted basement, and contains six recitation rooms.

The foundry and the forge shop is another brick building forty-four feet long by thirty-two feet wide. The foundry is supplied with a cupola furnace, brass furnace, core oven and facilities for moulding. The forge shop contains eight forges, anvils, a hand drill and the hand tools necessary for instruction in this branch.

The machine and carpenter shop is a building seventy feet long by thirty feet wide, two stories in height. The upper story is used for the carpenter shop and is supplied with carpenter benches, a full line of tools for manual work, six wood turning lathes, an eight-inch pattern-maker's lathe, a circular saw and a scroll saw. A portion of this story is also used for the making of *blue prints*, or the reproduction of drawings. The machine shop in the lower story of this building contains three engines lathes, a hand lathe, a planer, a milling machine, two upright drills, a grindstone, emery wheels and filing and chipping benches. The lower story contains a Harris-Corliss engine of twenty-five horse power, a dynamo specially designed and provided with extra armatures and field coils and used both for purposes of instruction and to generate electricity for lighting the Engineering buildings, and for testing lamps, motors, etc.

The basement of the recitation building contains a general testing machine of 50,000 lbs. capacity, manufactured by Riehlé Brothers of Philadelphia and fitted for tensile, compression, or transverse tests, with an electric micrometer, for measuring elongation. It also contains a cement tester of 2,000 lbs. capacity, an electrical storage bat-

tery of sixty cells, and other apparatus used in these department
The buildings adjoin and communicate conveniently with one another.

ALUMNI ASSOCIATIONS.

Local Alumni Associations for cherishing the college spirit, and for promoting the interests of the University in their several localities, have been formed as follows :

THE NEW YORK ASSOCIATION, for New York City and the vicinity : President, John H. Converse ; Secretary and Treasurer, W. A. Mitchell ; Executive Committee, Robert D. Benedict, W. E. Forest, C. W. Baker, C. W. Buckham.

THE NEW ENGLAND ASSOCIATION, meeting in Boston : President, Edmund W. Bennett ; Vice-Presidents, H. O. Houghton, N. G. Clark, G. G. Benedict, F. W. Page, Charles A. Catlin ; Secretary, M. E. Shedd ; Executive Committee, George N. Carpenter, D. R., Dewey, C. P. Thayer, T. W. P. Rogers, W. B. Gates.

It is understood that an Association is to be formed in Chicago at an early day.

DEPARTMENT OF MEDICINE.

FACULTY.

MATTHEW H. BUCKHAM, D. D.,

President.

JOHN ORDRONAU, M. D., LL. D.,

Emeritus Professor of Medical Jurisprudence.

J. WILLISTON WRIGHT, A. M., M. D.,

Emeritus Professor of the Principles and Practice of Surgery.

***WALTER CARPENTER, M. D.,**

Emeritus Professor of the Principles and Practice of Medicine.

ALBERT F. A. KING, A. M., M. D.,

Professor of Obstetrics and Diseases of Women.

ASHBEL P. GRINNELL, A., M. M. D.,

Professor of the Theory and Practice of Medicine; Consulting Physician to Mary Fletcher Hospital, and Dean of the Faculty.

RUDOLPH A. WITTHAUS, A. B., M. D.,

New York City, Professor of Chemistry and Toxicology.

J. HENRY JACKSON, A. M., M. D.,

Professor of Physiology and Microscopic Anatomy.

WILLIAM B. TOWLES, M. D.,

Professor of General and Special Anatomy.

J. H. WOODWARD, B. S., M. D.,

Professor of Materia Medica and Therapeutics; Secretary of the Faculty.

ABEL M. PHELPS, M. D.,

Professor of Surgery; Consulting Surgeon to Mary Fletcher Hospital; Surgeon to the Charity Hospital, N. Y.

JOHN B. WHEELER, A. B., M. D.,

Adjunct Professor of Surgery, Professor of Clinical and Minor Surgery.

HENRY C. TINKHAM, M. D.,

Adjunct Professor of Anatomy and Demonstrator of Anatomy.

***Deceased.**

JACOB C. RUTHERFORD, M. D.,

Adjunct Professor of Obstetrics.

C. SMITH BOYNTON, A. M., M. D.,

Adjunct Professor of Chemistry.

J. N. JENNE, M. D.,

Adjunct Professor of Materia Medica and Therapeutics.

PROFESSORS OF SPECIAL SUBJECTS.

STEPHEN M. ROBERTS, A. M., M. D.,

Professor of Diseases of Children.

WILDER L. BURNAP, A. M.,

Professor of Medical Jurisprudence.

J. H. WOODWARD, B. S., M. D.,

Professor of Diseases of the Eye and Ear ;

Ophthalmologist to the Mary Fletcher Hospital.

WILLIAM W. SEYMOUR, A. B., M. D.,

Professor of Surgical Diseases of Women.

CONDUCT W. CUTLER, M. S., M. D.,

Professor of Dermatology.

CHARLES F. BRANCH, M. D.,

Professor of Sanitary Science and Hygiene.

J. H. LINSLEY, M. D.,

Professor of Pathology and Bacteriology.

JAMES R. HAYDEN, M. D.,

Professor of Venereal Diseases.

P. M. WISE, M. D.,

Lecturer on Diseases of the Mind.

FREDERICK PETERSON, M. D.,

Lecturer on Diseases of the Nervous System.

W. C. JARVIS, M. D.,

Lecturer on Diseases of the Throat.

FORTIETH ANNUAL ANNOUNCEMENT.

The Medical Department of the University of Vermont and State Agricultural College was chartered by the State in 1828. It was reorganized in 1854. The institution is consequently one of the oldest Medical Colleges in the United States.

The fortieth annual course of lectures will begin Thursday, January 26th, 1893, and continue six months, ending July 17th. This extension of the term will increase the scope of the instruction and afford the student more time to digest the information imparted to him. The corps of instructors has been increased by the election of adjunct Professors to several chairs. These adjuncts will instruct the class by lectures or recitation under the directions of the chief of the department, and such instruction will be a compulsory part of the curriculum. The executive faculty remains unchanged.

There will be only *one* course of lectures in this department, the *Preliminary Term having been abolished.*

The curriculum comprises instruction in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice, Obstetrics, Surgery, Diseases of Children, Ophthalmology and Otology, Pathology and Bacteriology, Neurology, Diseases of the Mind, Hygiene, Medical Jurisprudence, Venereal Diseases, Dermatology, Laryngology, and Gynæcology. This instruction is given by scholastic and clinical lectures and by demonstrations. Laboratory instruction in Urinary Analysis, Histology, Pathology and Bacteriology and practical work in Physical Diagnosis and Demonstrative Obstetrics are now compulsory; and each candidate for the degree of Doctor in Medicine must have taken each of these branches *once* during his attendance at this college,

All private courses by the professors are abolished.

REQUIREMENTS FOR ENTRANCE.

A candidate who has been twice rejected on final examination at this College shall not be admitted to matriculation.

All students who have matriculated in this Department of the University *prior to July, 1891*, will be admitted to the lectures and enrolled as students in regular standing, *without preliminary examination*.

Applicants *who do not belong to this class* will be required to pass an Entrance Examination in *Arithmetic, Grammar, Geography, Orthography, American History, English Composition and Elementary Physics*, before they may be regularly enrolled as students in good standing in this Department. But applicants who may have failed in one or more branches at these examinations, may be enrolled as *conditioned* students; they must make up the deficiency, however, during the first year, before they can be enrolled as students in regular standing.

EXCEPTIONS :—Such entrance examination *will not be required* of applicants of the following classes :

1. Those who declare themselves *in writing* not to be candidates for the Degree in Medicine from this College.
2. Those who have received the Degree of A. B., A. M., B. S., M. S., Ph B., or Ph D., from a College or University which maintains a satisfactory Academic standard.
3. Those who have successfully completed a full year's course of study in any College or University which maintains a satisfactory Academic standard.
4. Those who have passed the entrance examinations to the Literary or Scientific Department of the University of Vermont, or to any other College or University which maintains a satisfactory Academic standard.
5. Those who have passed the entrance examinations to a

Medical School having requirements for entrance equivalent to those adopted by this Faculty.

6. Those who have received a "Medical Student's Certificate" from the Regents of the State of New York, or from any similarly constituted authority in other states.

7. Those who have received a Diploma or a Certificate for any ten studies from the Regents of the State of New York, or from any similar constituted authority in other states.

8. Those who have satisfactorily completed a three years' course in a High School, Normal School, or Academy.

The Entrance Examinations will be held on January 28, 1893, by Principal S. W. Landon, at the High School building.

Arrangements have been made to enable students to take in Burlington the examination required by the Regents of the University of New York. These examinations will be conducted by an authorized agent of the Regents of New York.

REQUIREMENTS FOR GRADUATION.

Students who have matriculated in this College prior to July 1, 1890, will be subject to the regulations and requirements for graduation as printed in the announcement for 1890.

THREE FULL COURSES OF LECTURES, OF AT LEAST TWENTY WEEKS EACH, WILL BE ABSOLUTELY REQUIRED OF STUDENTS WHO DO NOT COME UNDER THE ABOVE REGULATION, AND NO PERIOD OF PRACTICE WILL BE TAKEN AN AN EQUIVALENT OF ONE COURSE.

No candidate shall be admitted to an examination until all fees due the College from such candidate shall have been paid.

Candidates for the Degree of Doctor of Medicine, before presenting themselves for examination, must have attended at least three full courses of lectures of twenty weeks duration each, the last at this College. The candidate must have studied medicine three years,

must have attained the age of twenty-one years, and must present full certificates of the time of his study, of age, and of moral character. Each candidate is required to deposit his examination fee with the Secretary of the Faculty one month before the close of the session, and to furnish evidence of having pursued the study of Practical Anatomy under the direction of a demonstrator.

He must have taken at least one course of laboratory instruction in Urinary Analysis, in Histology, and in Pathology and Bacteriology, and one course of practical work in Physical Diagnosis and in Demonstrative Obstetrics at this college before he may become a candidate for graduation.

He must also pass a satisfactory written or oral examination before the Medical Faculty and Board of Medical Examiners appointed by the State Medical Society. No thesis is required.

The tickets and Diplomas of Eclectic and Homoeopathic, or Botanic Colleges, or of Colleges devoted to any special system of medicine, are considered irregular, and will not be recognized under any circumstances. Certificates from preceptors who practice any particular system of medicine, or who advertise, or violate in any way the Code of Ethics adopted by the profession, will not be accepted under any circumstances, even if the preceptors be regular graduates in medicine. Graduates of other medical colleges who desire a degree from this University, must take one laboratory course in Urinary Analysis, in Histology, and in Pathology and Bacteriology, one course of practical work in Physical Diagnosis and in Demonstrative Obstetrics at this College, and they must furnish evidence of having pursued the study of Practical Anatomy under the direction of a demonstrator.

They must pass a satisfactory examination in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice of Medicine, Surgery and Obstetrics. No thesis is required.

No credit in time or in lectures shall be given any student, by virtue of his degree in Pharmacy, Dentistry, or Veterinary Surgery.

Degrees *in absentia* are not conferred by this University under any circumstances whatever.

SPECIAL EXAMINATIONS IN THE ELEMENTARY DEPARTMENTS.

Students who have attended two full courses of lectures in *all departments taught in this College* may be examined upon Anatomy, Physiology, Chemistry, and Materia Medica, at the end of the second course, and if successful in these examinations they will be examined at the end of the third course upon Practice of Medicine, Surgery and Obstetrics only. Candidates for the primary examinations will be required to pay three-fifths of the examination fee. The primary examinations are held at the close of the regular session only. The certificate and the remainder of the examination fee are to be handed to the Secretary at the regular time before the examination. Certificates of having passed in any branch or branches in other Colleges are not accepted by this College.

FACULTY PRIZES.

The Faculty have established two Prizes for general proficiency in examination—a first Prize of Fifty Dollars, and a Second Prize of Twenty-Five Dollars. These prizes will be awarded as follows:

The ten students who pass the best examinations for their degree will be allowed to compete in a written examination for the prizes; of this number, the five who rank highest shall be called Honor Men, and will each receive a *Special Diploma of Honor*, and of these last, those who are deemed worthy shall receive respectively the first and second prize.

The Honor men of 1892 were: J. N. Coghlan, J. S. Horner, C. E. Holton, G. L. Shattuck and H. R. Watkins. The First Prize was awarded to G. L. Shattuck; the second prize to J. S. Horner.

FULL FEES OF THE COLLEGE.

MATRICULATION FEE , payable each term.....	\$ 5.00
FULL COURSE OF LECTURES , 1st year.....	80.00
FULL COURSE OF LECTURES , 2nd year.....	80.00
FULL COURSE OF LECTURES , 3rd year and each subsequent year	60.00
SINGLE TICKETS	15.00
EXAMINATION FEE , payable once, and not returnable.....	25.00
EXAMINATION FEE , Primary Branches.....	15.00
EXAMINATION FEE , Final Branches.....	10.00
DEMONSTRATOR'S FEE , required of every new matriculant, including material	10.00

Candidates for graduation must have taken each of the following practical courses once sometime during their attendance at this College :

HISTOLOGY	\$10.00
PATHOLOGY	10.00
URINALYSIS	10.00
PHYSICAL DIAGNOSIS	10.00
DEMONSTRATIVE OBSTETRICS	10.00

Students who have attended two full courses of lectures in some other regular School of Medicine are admitted on paying the matriculation fee and \$60.00.

Students who have already attended one full course in this College and one full course in some other regular Medical School, are admitted on paying the matriculation fee and \$60.

Graduates of other regular American Medical Schools are admitted on payment of the matriculation fee and \$25.

Graduates of this school are admitted without fee.

Theological students are admitted on payment of the matriculation fee only, unless intending to graduate in medicine, in which case they will be required to conform to the above conditions.

All fees must be paid to the Secretary, and are payable in advance.

For further particulars address the Secretary,

Dr. J. H. WOODWARD,

162 College Street,

BURLINGTON, VT.

STUDENTS OF 1892.

NAME.	NAME.
E. M. Alger, Vt.	E. A. Brownlee, O.
Edw. Atkinson, N. B.	M. Behrman, N. Y.
Edw. Abner, Tex.	H. V. Byrne, N. Y.
E. W. Arner, Penn.	H. L. Bingham, Vt.
F. C. Angell, Vt.	S. S. Carruth, Mass.
A. S. Ambler, N. Y.	C. H. Cutler, N. H.
G. F. Blair, Penn.	J. N. Coghlan, Mass.
A. J. Bradbury, Me.	W. F. Cummings, Vt.
H. P. Beirne, N. H.	N. R. Cook, Me.
J. E. Burby, N. Y.	E. A. Cardin, Mass.
H. E. Ballard, Vt.	W. F. Clarkson, N. Y.
J. M. Brown, Vt.	J. M. Curran, Penn.
H. D. Brennan, Vt.	L. J. Cooke, Vt.
B. J. Brown, Jr., Vt.	C. A. Cramton, Vt.
Chas. P. Buzzell, N. H.	F. E. Clarke, Mass.
E. C. Branch, N. Y.	A. A. Cobb, Me.
E. W. Bennett, N. Y.	M. B. Carpenter, Mass.
S. H. Burford, Tex.	H. A. Cheney, N. H.
G. C. Berkley, Vt.	T. W. Clark, P. E. Isl.
J. M. Bemis, Mass.	H. E. Chase, Me.
E. A. Burdick, Vt.	J. M. Cronin, Mass.
G. M. Brubaker, Penn.	D. H. Calder, Utah.

NAME.	NAME.
O. T. Curran, Penn.	J. Gilrain, Vt.
C. Z. Cootey, N. Y.	E. B. Hodskins, Vt.
H. T. Cate, Mass.	C. E. Holton, Vt.
L. DeMonchy, France.	W. L. Heath, Vt.
W. M. Dowlin, Mass.	J. S. Horner, N. H.
E. E. Dickerman, Vt.	J. F. Hilton, Me.
J. F. Donahue, Conn.	B. E. Huckabee, Ala.
Geo. E. Dixon, Vt.	J. M. Harris, Ala.
C. E. Davenport, N. Y.	J. M. Hamilton, Vt.
R. E. Downey, Mass.	L. C. Holcomb, O.
E. B. Davis, Vt.	F. W. Hewes, Vt.
J. H. Dixon, Mass.	F. E. Harlow, Vt.
S. M. Davenport, Penn.	A. W. Holman, O.
H. A. Elliott, N. Y.	W. B. Hyde, Fla.
G. L. Edwards, Vt.	E. J. Horan, Mass.
P. M. Fitzsimmons, Mass.	J. J. Hurley, Mass.
F. C. Fletcher, N. Y.	H. N. Jackson, Ont.
I. N. Fowler, N. B.	J. A. Jennings, Utah.
J. D. Finnegan, N. Y.	O. A. Johnson, N. Y.
G. E. Ferrin, N. H.	W. L. Knowles, Vt.
C. F. Ferrin, Vt.	O. H. Kelsey, Vt.
H. E. Fernald, Me.	J. S. King, N. Y.
F. C. Farrow, Mass.	L. I. Kinsella, Vt.
Howard Fraser, Mass.	C. D. Kelley, N. Y.
Wm. Galvin, Mass.	H. F. Kinsman, Mass.
T. E. Guild, Vt.	E. S. Lane, Vt.
T. F. Gartland, Vt.	W. A. Lyman, Vt.
G. T. Gale, Vt.	J. L. Leffingwell, Mass.
F. S. Grey, N. Y.	A. J. Lance, Vt.
E. E. Goodwin, Mass.	E. E. Lake, Mass.

NAME.
U. Laurier, N. H.
E. R. Lynch, Vt.
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The Library has just received from Miss Horatia Ware of Boston, a portrait in oil of her brother, the late Rev. L. G. Ware, L. H. D., painted by Miss Elizabeth H. Bartol of Boston.

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CALENDAR.

1893.

27 Sept., Wednesday, A.M.,	First half-year began.
Thanksgiving Recess,	From Wednesday noon before Thanksgiving Day through the week.
Christmas Recess,	Including Christmas Day and New Year's Day.

1894.

5 Feb., Monday,	Mid-year Examinations begin.
15 Feb., Thursday,	Second half-year begins.
28 Mch., Wednesday to April 8, Tuesday,	Spring Recess.
11 May, Friday,	Prize Reading for Women Students.
14 June, Thursday,	Final Examinations begin.
23 " Saturday, 8 P. M.,	Prize Debate.
24 " Sunday, 3 P. M.,	Baccalaureate Discourse.
24 " " 7.30 P. M.,	Anniversary of Y. M. C. A.
25 " Monday,	Class Day.
26 " Tuesday, 9 A. M.,	Meeting of Phi Beta Kappa.
26 " " 10 A. M.,	Meeting of Alumni Association.
26 " " 3 P. M.,	Address before Phi Beta Kappa.
26 " " 7.30 P. M.,	Forest Prize Speaking.
27 " Wednesday,	Commencement.
28 " Thursday, 9 A. M., } and 2 P. M., }	Entrance Examinations.

SUMMER VACATION.

25 Sept., Tuesday, 9 A. M. } and 2 P. M. }	Entrance Examinations.
26 " Wednesday, 8.15 A. M.,	First half-year begins.
13 Oct., Saturday,	Freshman Prize Entrance Examinations begin.

DEPARTMENT OF MEDICINE.

1894.

25 Jan., Thursday,	Lectures begin.
16 July, Monday,	Exercises of Graduation.

HISTORY AND CHARTERS.

“ An Act for the purpose of founding a University at Burlington” was passed by the Legislature of Vermont, Nov. 2nd, 1791, of which the following are the Preamble and First Section :

“ Whereas the education of youth is necessary for the advancement of morality, virtue and happiness, and tends to render a people or State respectable ; to promote which, establishments for Seminaries and Colleges have ever been patronized by all good governments ; and whereas several grants of land have already been made by the State, and private liberal donations have been offered, for promoting so needful an establishment within the same, which demand the attention of this Legislature for laying the foundation for an institution so beneficent to society ; therefore,

Section I. It is hereby enacted by the General Assembly of the State of Vermont, that there shall be and hereby is a College instituted and established at such place in the township of Burlington in the County of Chittenden as the Corporators hereinafter named shall think most convenient for that purpose, to be known and designated by the style of THE UNIVERSITY OF VERMONT.”

A subsequent act gave to the Corporation of the University “full power, right, and authority to appropriate to the use and benefit of the said University forever, all such lands as have been already granted and reserved by the authority of this State for the use and benefit of a College.”

The Act of Incorporation vested in the Trustees of the University of Vermont full power “to appoint, elect, support and remove from time to time, all such officers and servants as they shall find necessary ; to direct the studies of the youth ; to establish professorships and professors, and provide for their support ; to make and

establish all necessary rules, regulations and by-laws for the orderly government of said University (provided always that the said rules, regulations and by-laws shall not tend to give preference to any religious sect or denomination whatsoever;) to grant and confer all such degrees, literary titles, honors and distinctions as other Universities, Colleges and Seminaries have done or may of right do; and to do any other thing which shall be found necessary for the government and welfare of such an institution."

With the consent of the Corporation certain changes were made by the Legislature in respect to the number and the mode of election of the trustees of the University by Acts passed Nov. 2nd, 1810, and October 31st, 1823, but these were, with like consent, repealed by the Act of October 30th, 1838, which revived and confirmed the provisions of the original charter, which charter remains in full force at the present time, with such modifications as the Corporation of the University accepted in 1865, in accordance with the provisions of the charter of The University of Vermont and State Agricultural College.

In 1862, largely through the exertions of Hon. Justin S. Morrill, then Representative and since Senator from Vermont, Congress passed an "Act donating public lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts." Under the provisions of this Act, the Legislature of Vermont chartered in 1862 the Vermont Agricultural College, which, failing to receive the support necessary to put it into operation, was by an act approved Nov. 6th, 1865, incorporated with the University of Vermont into one institution by the name of "The University of Vermont and State Agricultural College." This corporation is invested with the property, rights, powers and privileges which belonged to both or either of the corporations so combined, and "shall be and remain a body corporate forever, for the purpose of carrying out the objects contemplated in the respective charters" of the two institutions.

The "objects contemplated" in the charter of the Vermont Agricultural College are stated in the exact language of the Act of Congress providing for Colleges of Agriculture and the Mechanic Arts, as follows:

"The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

The objects contemplated in the charter of the University of Vermont are stated in the Preamble and Sections as given above.

The charter of the University of Vermont and State Agricultural College requires that "there shall, at all times, be maintained in the institution hereby created, such instruction in the various branches of learning as is contemplated in the several charters of each of the institutions hereby united; and more particularly including a four years course of studies, similar to such as are generally taught in other colleges and not inferior to that recently taught in said University of Vermont; and in addition to that which is usually taught in other colleges, the instruction in this institution shall include such enlarged facilities, and extended scope and variety in the study of those branches which relate to military tactics, agriculture and the mechanic arts, as shall render the whole instruction in conformity with said act of Congress, as well as with the several charters aforesaid."

Section II of the Charter provides that, for the purpose of receiving property by gift, grant, bequest or otherwise, and for certain other purposes therein specified, each of the original corporations shall be deemed and treated as having continued in life.

Gifts and bequests may therefore be made to (1) The University of Vermont, (2) The Vermont Agricultural College, (3) The University of Vermont and State Agricultural College.

By the provisions of

"An Act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the

benefit of agriculture and the mechanic arts established under the provisions of an act of Congress, approved July second, eighteen hundred and sixty-two," the institution receives from the United States Treasury an annual appropriation to be applied "only to instruction in Agriculture, the Mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

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WILLIAM WATKINS SEYMOUR, A. B., M. D., Professor of Surgical Diseases of Women.	Troy, N. Y.
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JAMES H. HAMILTON, M. D., Professor of Sanitary Science and Hygiene.	Richford.
JOSEPH HATCH LINSLEY, M. D., Professor of Pathology and Bacteriology.	268 S. Union St.
JAMES R. HAYDEN, M. D., Professor of Genito-Urinary and Venereal Diseases.	New York City.
P. M. WISE, M. D., Lecturer on Diseases of the Mind.	Ogdensburg, N. Y.
FREDERICK PETERSON, M. D., Lecturer on Diseases of the Nervous System.	New York City.

INSTRUCTORS.

	RESIDENCE.
FREDERICK MERRITT CORSE, A. M., Instructor in Political Economy and Mathematics, Secretary and Registrar.	Office, Billings Library.
JOHN BRAINARD STEARNS, B. S., Instructor in Chemistry.	44 S. Willard St.
FRANK ABIRAM RICH, V. S., M. D., Instructor in Veterinary Medicine.	Howard Bank Building.
HEMAN BETHUEL CHITTENDEN, A. M., Instructor in the Agricultural Department.	160 Pine St.
ALFRED GURDON GULLEY, M. S., Instructor in Horticulture and Agriculture.	191 S. Willard St.
WILLIAM EDWARD SIMPSON, Instructor in Dairying.	Princeton, Ind.
JAMES EATON, Instructor in Shop Work.	188 Colchester Ave.

OTHER OFFICERS.

THOMAS R. BARNUM, A. B., Librarian.	81 Lafayette Place.
ELLA EVARTS ATWATER, A. B., Assistant Librarian.	
PROFESSOR BARBOUR, Superintendent of Buildings and Grounds.	
PROFESSOR PERKINS, Curator of Museum.	
CHAUNCEY GOODRICH, Assistant in the Library.	
FRANK NELSON GUILD,	
STEPHEN FREEMAN,	
FREDERICK MELLEN KNIGHTS, Assistants in the Chemical Laboratory.	

Leader of the Chapel Choir.

MERRILL MARQUAND HUTCHINSON,
Organist.

FACULTY COMMITTEES.

Library Committee :

PRESIDENT BUCKHAM,
PROFESSOR TORREY,
PROFESSOR PERKINS.

Committee on the Status of Students :

PROFESSOR EMERSON,
PROFESSOR VOTEY.

Military Committee :

PRESIDENT BUCKHAM,
CAPTAIN TUTHERLY,
PROFESSOR MERRILL.

Absence Committee :

PROFESSOR GOODRICH,
PROFESSOR AXSON,
MR. CORSE, Sec'y.

Athletic Committee :

PROFESSOR LOOMIS,
PROFESSOR VOTEY,
PROFESSOR AYER,
PROFESSOR JOHN B. WHEELER,
for the Medical Department.

STUDENTS.

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SENIOR CLASS.
Classical Students.

NAME.	RESIDENCE.	ROOM.
Armstrong, Egbert Jackman,	<i>Castleton.</i>	6 S. College.
Armstrong, Jabez Eldridge,	<i>Johnsburgh, N. Y.</i>	217 S. Union St.
Avery, John Waite,	<i>Upper Alton, Ill.</i>	78 Pine St.
Briggs, Clark Cleland,	<i>Burlington.</i>	43 N. Union St.
Chittenden, Merritt Darrow,	<i>Burlington.</i>	160 Pine St.
Crombie, Arthur Choate,	<i>Burlington.</i>	412 Maple St.
Dunham, Frank Lee,	<i>Northfield.</i>	3 N. College.
Dunn, Carl Boright,	<i>Abercorn, P. Q.</i>	11 S. College.
Englesby, William Hudson,	<i>Burlington.</i>	112 William St.
French, Calvin Hiram,	<i>Malone, N. Y.</i>	5 S. College.
Heald, Sarah Jennie,	<i>Springfield.</i>	35 Colchester Ave.
Hopkins, William Cyprian,	<i>Toledo, O.</i>	So. Burlington.
Hoyt, Robert Douglas,	<i>Burlington.</i>	204 College St.
Jones, Erwin Byron,	<i>Burlington.</i>	58 S. Willard St.
Severson, Robert Kilburn,	<i>Burlington.</i>	308 Main St.
Strickland, Edward Dinwoodie,	<i>Buffalo, N. Y.</i>	5 S. College.
Vilas, Martin Samuel,	<i>Winooski.</i>	Winooski.
Wright, Bessie Dow,	<i>Burlington.</i>	81 Adams St.
Wright, Fred Spencer,	<i>Barton Landing.</i>	180 Pearl St.

Literary-Scientific Students.

Batchelder, John Davis,	<i>Faribault, Minn.</i>	412 Maple St.
Bates, Mary Russell,	<i>Burlington.</i>	81 Loomis St.
Botsford, Addis Kingsley,	<i>Plattsburgh, N. Y.</i>	2 S. College.
Bottum, Frederick George,	<i>Rutland.</i>	457 Main St.

NAME.	RESIDENCE.	ROOM.
Boynton, May Olive,	<i>Burlington.</i>	69 N. Prospect St
Cambridge, Walter Harriman,	<i>Grafton.</i>	40 Clarke St.
Fuller, Ida May,	<i>Starksboro.</i>	2 Hickok Place.
Goodrich, Mary Helen,	<i>Essex.</i>	2 Hickok Place.
Landt, Katrina Margarita,	<i>Waterbury.</i>	2 Colchester Ave.
Lee, Irene Emily,	<i>Burlington.</i>	89 Hyde St.
Moody, Inez Eugenia,	<i>Waterbury.</i>	2 Colchester Ave.
Read, Ellen Ruth,	<i>Burlington.</i>	182 Colchester Ave.
Scott, Lillian Agnes,	<i>Burlington.</i>	70 N. Union St.
Thompson, Oella Azuba,	<i>Hyde Park.</i>	Buell St.

Engineering Students.

Blessing, Elwood Grant,	<i>Albany, N. Y.</i>	Middle College.
Longe, Albert Duane,	<i>East Albany.</i>	95 Main St.
Sprague, George Keith,	<i>Brookfield.</i>	69 Grant St.
Stevens, Edson Murray,	<i>Hyde Park.</i>	2 S. College.
Tracy, Abel Blodgett,	<i>Randolph.</i>	95 Main St.
Young, John Findlay.	<i>W. Glover.</i>	180 S. Prospect St.

Chemical Students.

Freeman, Stephen,	<i>Montpelier.</i>	40 Clarke St.
Guild, Frank Nelson,	<i>Greensboro.</i>	19 Converse Court.
Knights, Jr., Frederic Mellen,	<i>Burlington.</i>	188 Colchester Ave.
Spaulding, Edward Gleason,	<i>Burlington.</i>	179 Winooski Ave.

Agricultural Students.

Stevens, Charles Edward,	<i>Jonesville.</i>	Exp. Farm.
Stuart, William,	<i>Burlington.</i>	Exp. Farm.

STUDENTS.**17****Special Student.**

NAME.	RESIDENCE.	ROOM.
Walker, William Hall,	<i>Burlington.</i>	199 S. Union.

JUNIOR CLASS.**Classical Students.**

Allen, Marion Shaler,	<i>Brooklyn, N. Y.</i>	471 Main St.
Andrews, Clayton Gerald,	<i>Richmond.</i>	178 No. Prospect.
Brown, Frank Preston,	<i>No. Adams, Mass.</i>	128 Col. Ave.
Burdick, Florence Lucy,	<i>Winooski.</i>	72 Main St., Winooski.
Daggett, Wilfred Farr,	<i>Bristol.</i>	Middle College.
Davis, Earle Russell,	<i>Waits River.</i>	2 N. College.
Deberville, Frederick Barnum,	<i>Hinesburgh.</i>	147 Main St.
Eastman, Fannie,	<i>Bradford.</i>	130 Colchester Ave.
Hill, Bert Hodge,	<i>Bristol.</i>	131 N. Union St.
Hopkins, Theodore Eli,	<i>Toledo, O.</i>	Winooski.
Hutchinson, Merrill Marquand,	<i>Burlington.</i>	178 S. Prospect St.
Johnson, Grace Agnes,	<i>Burlington.</i>	36 Converse Ct.
Jones, Eva Addie,	<i>Burlington.</i>	North Ave.
McFarland, Wm. James Burdick,	<i>Felchville, N. Y.</i>	19 Converse Ct.
Randall, Edward Gove,	<i>Poultney.</i>	6 S. College.
Ross, Philip James,	<i>Franklin Falls, N. H.</i>	412 Maple St.
Samson, Stewart Leroy,	<i>St. Albans.</i>	42 Elmwood Ave.
Sharp, Frederick Thompson,	<i>E. Craftsbury.</i>	144 Willard St.
Sherburne, Annie Laurie,	<i>N. Pomfret.</i>	483 Main St.
Wilson, John Jay,	<i>Bethel.</i>	1 N. College.
Winslow, Charles Gardner,	<i>Brandon.</i>	61 Mansfield, Ave.

Literary-Scientific Students.

Atkinson, Frances,	<i>Newbury.</i>	138 Colchester Ave.
Bigelow, Walter Josephus,	<i>Stowe.</i>	2 N. College.
Blodgett, John Henry,	<i>Grafton.</i>	16 S. College.

NAME.	RESIDENCE.	ROOM.
Dalrymple, George Hiram,	<i>Vergennes.</i>	Middle College.
Doten, Carroll Warren,	<i>Burlington.</i>	57 Loomis St.
Lowell, Alverne Percy,	<i>Burlington.</i>	49 Mansfield Ave.
Purple, Robert H.	<i>Woodstock.</i>	10 N. College.
Saunders, Leslie Manchester,	<i>Dickinson Ct'r, N. Y.</i>	8 N. College.
Shurtleff, Harry Clyde,	<i>Montpelier.</i>	51 Loomis St.
Way, Harry Abel,	<i>Burlington.</i>	82 King St.
Wilcox, Grace Lovantia,	<i>W. Concord, N. H.</i>	85 Colchester Ave.

Engineering Students.

Andrén, Karl Augustus,	<i>Beverly, Mass.</i>	412 Maple St.
Davis, Hugh,	<i>Rutland.</i>	150 Colchester Ave.
Hunt, Leigh,	<i>Brooksville.</i>	So. Burlington.
Pratt, John Frederick,	<i>Rutland.</i>	69 Grant St.
Thompson, George Zadock,	<i>Woodstock.</i>	216 S. Prospect St.
Woodward, Rollin Nathaniel,	<i>Johnson.</i>	5 N. College.

Chemical Student.

Peterson, George,	<i>Burlington.</i>	40 S. Willard St.
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Agricultural Students.

Hinsdale, George Griswold,	<i>St. George.</i>	16 Exp. Station.
Stearnes, Oscar Follett,	<i>Windham.</i>	Exp. Farm.
Webber, Norman Brown,	<i>Thetford Centre.</i>	12 Exp. Station.

Special Students.

Hatch, Fred Thorburn,	<i>Burlington.</i>	128 Colchester Ave.
Johnson, Leirion Hannah,	<i>Burlington.</i>	292 North St.
Morse, Harold Russell,	<i>Burlington.</i>	412 Maple St.

SOPHOMORE CLASS.**Classical Students.**

NAME.	RESIDENCE.	ROOM.
Allen, Charles Ethan,	<i>Rutland.</i>	150 Colchester Ave.
Anderson, George Pomeroy,	<i>St. Albans.</i>	11 S. College.
Beecher, George Fletcher,	<i>Essex Centre.</i>	71 Winooski Ave.
Blake, Norris Darling,	<i>Morrisville.</i>	69 Grant St.
Bosworth, Grace Mabel,	<i>Bristol.</i>	488 Main St.
Canfield, Thomas Hawley,	<i>Burlington.</i>	488 Main St.
Colburn, John Edward,	<i>Foster Brook, Pa.</i>	7 S. College.
Goodrich, Chauncey Marsh,	<i>Burlington.</i>	488 Main St.
Harvey, Erwin Maurice,	<i>West Topsham.</i>	415 Pearl St.
Hazen, Robert,	<i>Richmond.</i>	4 S. College.
Ingalls, Elwin Leroy,	<i>Montgomery.</i>	4 S. College.
Leavens, Annie Bowen,	<i>Passaic, N. J.</i>	488 Main St.
Marsh, William Parmelee,	<i>Forest Grove, Or.</i>	7 S. College.
May, Florence Joanna,	<i>St. Johnsbury.</i>	2 Colchester Ave.
Morrow, Andrew Carson,	<i>Winooski.</i>	Weaver St., Winooski.
Norton, Elisabeth,	<i>Rutland.</i>	85 S. Willard St.
Roberts, Frederick William,	<i>Burlington.</i>	83 Main St.
Shaw, Henry Bigelow,	<i>Burlington.</i>	258 S. Union.
Shaw, Harry Whitney,	<i>W. Brattleboro.</i>	237 Colchester Av.
Stearns, Joseph Tuttle,	<i>Burlington.</i>	44 Willard St.
Spafford, Mattie Elisabeth,	<i>Rutland.</i>	35 Colchester Ave.
Taylor, Charles Clinton,	<i>Richford.</i>	20 School St.
Wheeler, Almon Cassius,	<i>So. Burlington.</i>	Middle College.

Literary-Scientific Students.

Amell, Mary Luella,	<i>Burlington.</i>	289 Colchester Ave.
Arnold, Clarence Newton,	<i>Providence, R. I.</i>	457 Main St.
Babbit, Jessie Ellen,	<i>Burlington.</i>	S. Winooski Ave.
Bates, Charles Atwood,	<i>Randolph.</i>	16 N. College.

NAME.	RESIDENCE.	ROOM.
Bingham, Frank Parker,	<i>Titusville, Pa.</i>	3 N. College.
Buffum, John Harold,	<i>East Dorset.</i>	19 Converse Court.
Clark, Anna May,	<i>Brookfield.</i>	College Farm.
Keeler, Pearlie L. C.	<i>Essex Center.</i>	College Farm.
McDuffee, Alice A.	<i>Thetford.</i>	35 Colchester Ave.
Norton, Ruth Ida,	<i>Bristol</i>	181 N. Union St.
Parmenter, Julia Winifred,	<i>Brookfield.</i>	2 Colchester Ave.
Peck, May Aurelia,	<i>Brookfield.</i>	2 Colchester Ave.
Scott, Jessie,	<i>Burlington.</i>	70 N. Union St.
Whitney, Geo. Washington Tapley,	<i>Bethel.</i>	128 Colchester Ave.
Hanson, Herbert Bill,	<i>Bradford.</i>	415 Pearl St.

Engineering Students.

Bicknell, Dana,	<i>Underhill.</i>	2 Colchester Ave.
Camp, Norman Harold,	<i>Washington, D. C.</i>	412 Maple St.
Chase, Ernest Henry,	<i>Woodstock.</i>	12 S. College.
Cutter, Alfred Breen,	<i>Marlborough, Mass.</i>	8 N. College.
Dunham, Clayton Edwin,	<i>Bethel.</i>	6 N. College.
English, Fred Steele,	<i>Woodstock.</i>	10 N. College.
Hagar, Charles H.	<i>Burlington.</i>	387 College St.
Hibbard, William Samuel,	<i>W. Glover.</i>	61 Mansfield Ave.
Howe, Arthur Otis,	<i>Newfane.</i>	229 Colchester Ave.
King, Nathaniel,	<i>Plymouth.</i>	14 S. College.
Knox, William John,	<i>Craftsbury.</i>	N. College.
Lovell, Maitland Clair,	<i>Springfield.</i>	2 N. College.
Parker, Daniel Luman,	<i>Bethel.</i>	128 Colchester Ave.
Tobin, Philip Chase,	<i>Swanton.</i>	13 N. College.
West, Ernest W.	<i>W. Dorset.</i>	40 Clarke St.
Weston, Sydney Farnsworth,	<i>Cascadeville, N. Y.</i>	3 S. College.

Chemical Students.

NAME.	RESIDENCE.	ROOM.
Blake, John Mason.	<i>Essex.</i>	Essex.
Deavitt, Henry McIntyre.	<i>Montpelier.</i>	3 S. College.
Giddings, Harry DeWitt.	<i>Bakersfield.</i>	243 Colchester Ave.
Sabin, George Miller.	<i>Malone, N. Y.</i>	2 Colchester Ave.
Wilder, Henry Lawrence.	<i>Swanton.</i>	160 Pine St.

Agricultural Students.

Bickford, Newell Doten.	<i>Cabot.</i>	Exp. Farm.
Boyce, James Wesley.	<i>W. Burke.</i>	11 Exp. Station.
Fisher, Carl Wallace.	<i>Cabot.</i>	15 Exp. Station.
Kidder, Joseph Benjamin.	<i>E. Hardwick.</i>	15 Exp. Station.
Sargeant, Homer Jones.	<i>E. Corinth.</i>	18 Exp. Station.
Small, Fred Milo.	<i>Morrisville.</i>	11 Exp. Station.
Tracy, Carl Cyrus.	<i>Randolph.</i>	Exp. Farm.

Special Students.

Barrett, Otis Warren.	<i>Clarendon.</i>	16 Exp. Station.
Douglas, Mary Gertrude.	<i>Burlington.</i>	229 Colchester Ave.
Dunsmore, George Henry.	<i>St. Albans.</i>	12 Exp. Station.
Smith, Edith Emma.	<i>Burlington.</i>	415 Maple St.

FRESHMAN CLASS.

Classical Students.

Adams, Lemuel Payson.	<i>Swanton.</i>	8 S. College.
Brigham, Blanche.	<i>Hyde Park.</i>	483 Main St.
Burdick, George Moxham.	<i>Crown Point, N. Y.</i>	69 Grant St.
Clark, Henry Wallace.	<i>Castleton.</i>	26 Lafayette Place.

NAME.	RESIDENCE.	ROOM.
Felton, Gay Worthington.	<i>Berkshire.</i>	37 Russell St.
Hazen, Tracy Elliot,	<i>Richmond.</i>	4 S. College.
Hogan, George Maynard.	<i>St. Albans.</i>	10 S. College.
Hurley, Minnie Hodges,	<i>Northfield.</i>	2 Colchester Ave.
Hyde, Harlow Franklin,	<i>Burlington.</i>	133 Hyde St.
Jackson, Fred Kinney.	<i>Barre.</i>	2 Colchester Ave.
Lucas, Edna Mabel.	<i>St. Johnsbury.</i>	61 Mansfield Ave.
Mace, Wells Howard.	<i>Burlington.</i>	47 Hyde St.
Plumely, Theodora May.	<i>Northfield.</i>	2 Colchester Ave.
Prentiss, Cyrus Holmes,	<i>Windham.</i>	128 Colchester Ave.
Walker, Robert Meech,	<i>Burlington.</i>	347 S. Union.
Webster, Arthur Roy,	<i>Irassburgh.</i>	20 Exp. Station.
Wedgeworth, Donald Clark,	<i>W. Berkshire.</i>	15 S. College.
Willard, Frederick Buell,	<i>Burlington.</i>	244 Pearl St.

Literary-Scientific Students.

Buttles, John Stephen.	<i>Brandon.</i>	13 N. College.
Coburn, Charles Austin,	<i>Enosburgh.</i>	19 Converse Court.
Edwards, May Alice,	<i>Winooski.</i>	Weaver St., Winooski.
Ladd, Arline Estelle,	<i>Thetford.</i>	35 Colchester Ave.
Iæe, Adele Irene,	<i>Burlington.</i>	433 S. Union St.
Lincoln, Frederic Fuller.	<i>Malone, N. Y.</i>	2 Colchester Ave.
Livingston, Ernest George.	<i>Berkshire.</i>	20 School St.
Noyes, Grace Alice,	<i>Hyde Park.</i>	138 Colchester Ave.
Kidder, Mabel Electa.	<i>E. Hardwick.</i>	2 Colchester Ave.
Page, Katharine Jane.	<i>Hinesburgh.</i>	80 College St.
Slade, Helen Frances,	<i>Thetford.</i>	35 Colchester Ave.
Slade, Mary Ella,	<i>Thetford.</i>	35 Colchester Ave.
Stearns, Bessie Lou,	<i>Burlington.</i>	35 Loomis St.
Tyler, Edward Judson,	<i>Enosburgh Falls.</i>	19 Converse Ct.
Wadleigh, Katharine Grace.	<i>E. Berkshire.</i>	2 Colchester Ave.
Williams, Georgiana Maude,	<i>Burlington.</i>	205 Elmwood Ave.

Engineering Students.

NAME.	RESIDENCE.	ROOM.
Allen, Edwin Brown,	<i>Brimfield, Mass.</i>	244 Main St.
Colby, Ora Alonzo,	<i>Woodstock.</i>	7 N. College.
Davis, Frank Porter,	<i>Essex.</i>	388 S. Union St.
Davis, James Lyford,	<i>Fairlee.</i>	15 S. College.
Doten, Leonard Smith,	<i>Burlington.</i>	51 Loomis St.
Farrington, Franklin Reynolds,	<i>Brandon.</i>	61 Mansfield Ave.
Hagar, Henry Hall,	<i>Burlington.</i>	337 College St.
Holton, Douglas Winfield,	<i>Burlington.</i>	7 Johnson St.
Kern, Walter Pope,	<i>Burlington.</i>	72 S. Winooski Ave.
Parady, George Peter,	<i>Burlington.</i>	392 North St.
Robbins, Merton Corey,	<i>Brattleboro.</i>	128 Colchester Ave.
Sayward, William James,	<i>Woodstock.</i>	17 N. College.
Seager, Hugh Aaron,	<i>Brandon.</i>	13 N. College.
Smith, George Edson Phillip,	<i>W. Burke.</i>	74 S. Willard St.
Stetson, Almon Beede,	<i>Wadham's Mills, N. Y.</i>	229 Col. Ave.
Udall, Horace Hovey,	<i>Strafford.</i>	12 Exp. Station.
Wyatt, Benjamin James,	<i>Burlington.</i>	26 Interval Ave.

Chemical Students.

Clark, Albert,	<i>Georgia.</i>	18 S. College.
Cox, Walter Elisha,	<i>Woodstock.</i>	18 S. College.
Gay, Lewis,	<i>Burlington.</i>	16 Hickok Place.
Hayward, Lawrence Barnes,	<i>Burlington.</i>	371 Main St.
Murray, William Wallace,	<i>Winooski.</i>	5 Follett St., Winooski.
Smith, Ernest Norman,	<i>Woodstock.</i>	471 Main St.
Whitney, Charles Flagg,	<i>Williston.</i>	18 S. College.
Wronn, Charles Augustus,	<i>Burlington.</i>	Buell St.

Agricultural Students.

NAME.	RESIDENCE.	ROOM.
Bicknell, Fred Grant,	<i>Johnson.</i>	13 Exp. Station.
Clark, Charles Frederick,	<i>Glover.</i>	204 College St.
Herrick, Edward Elisha,	<i>Milton.</i>	31 Johnson St.
Hubbard, George Campbell,	<i>Springfield.</i>	20 Exp. Station.
Orton, William Allen,	<i>Fairfax.</i>	17 Exp. Station.
Parker, Madison Alden,	<i>Concord.</i>	14 Exp. Station.
Saunders, Alvan Ross,	<i>Johnson.</i>	14 Exp. Station.
Wallace, Hiram James,	<i>W. Concord.</i>	13 Exp. Station.
Wilder, Frank Bowman,	<i>E. Hardwick.</i>	19 Exp. Station.
Finn, John Eugene,	<i>W. Randolph.</i>	Exp. Farm.

Special Students.

Lawrence, Anna L.	<i>Burlington.</i>	Willard St.
Millham, Margaret Alice,	<i>Williston.</i>	92 S. Winooski Ave.
Soule, Alice Louisa,	<i>St. Albans.</i>	61 Mansfield Ave.
Woodward, Agnes Mae,	<i>Morrisville.</i>	138 Colchester Ave.

GENERAL STATEMENT OF INSTRUCTION.

Instruction is given in the University in :

I. The Department of Arts, which embraces : 1. The usual Classical Course in the Languages, ancient and modern, Mathematics, Physical Science, Mental, Moral, and Political Philosophy, Rhetoric, Literature and History, and leads to the degree of Bachelor of Arts ; 2. The Literary-Scientific course, in which the studies of the Classical course are pursued with the exception of Greek, and which leads to the degree of Bachelor of Philosophy.

II. The Scientific Departments, embracing the studies required (1) by the Morrill Act of 1862, which provides that instruction be given not only in "classical and other scientific studies," but especially in "branches of learning relating to Agriculture and the Mechanic Arts ;" and (2) by the Endowment Act of 1890, which provides for instruction in "Agriculture, the Mechanic Arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life."

These Departments are : 1. The Department of Engineering, which includes (a) Civil and Sanitary Engineering ; (b) Electrical Engineering ; (c) Mechanical Engineering.

2. Chemistry.

3. Agriculture.

The degree in each case is Bachelor of Science, see index, *degrees*.

III. The Department of Medicine, leading to the degree of Doctor of Medicine.

ADMISSION.

Candidates for admission to the University must produce satisfactory testimonials of good moral character and must be at least fifteen years of age.

Students coming from another College must present a certificate of regular dismissal from the institution they have left, and furnish satisfactory evidence of proficiency in all the studies—or their equivalents—which have been pursued by the class they propose to enter. For admission to an advanced class, a corresponding increase in age is required, and a thorough knowledge of all the studies that have been pursued by the students of the same class.

Young women are admitted to all the courses in the Department of Arts and Science of the University, upon the same conditions as young men. They are required to room and board in private families approved by the Faculty.

REQUIREMENTS FOR ADMISSION TO THE CLASSICAL DEPARTMENT.

Greek. (1) Greek Grammar including Prosody ; (2) Xenophon's *Anabasis* ; four books ; (3) Homer's *Iliad*, three books ; (4) Woodruff's *Greek Prose Composition* ; (5) Translation at sight.

Latin. (1) Latin Grammar including Prosody ; (2) The first thirty lessons in Jones's *Latin Prose Composition* ; (3) Cæsar, four books ; (4) Cicero, six orations and the *De Amicitia* ; (5) Virgil, six books of the *Æneid* and the *Eclogues*.

In the case of Latin and Greek authors, substitutes will be accepted if they be full equivalents for the work here prescribed.

Teachers are urgently requested to give their pupils practice in reading at sight. They are also urged to have their pupils read aloud *in both Greek and Latin* as much as possible, that the ear may be trained to the sound of the language and that the words may gradually come to convey a meaning to the pupil's mind immediately and not through their English equivalents.

In the pronunciation of Greek, the rules of Hadley and Allen's Grammar, pp. 4, 5, 7 should be followed.

Mathematics. (1) Arithmetic including the metric system ; (2) Algebra through Quadratic Equations ; (3) Plane Geometry.

English. (1) English Grammar ; (2) Orthoepey ; (3) English Composition, to be based for 1894, upon the following works : Bunyan's Holy War, Shakespeare's As You Like It, Dickens's Christmas Carol, Longfellow's Evangeline, Macaulay's Essay on Milton.

History. (1) Ancient and Modern Geography ; (2) Ancient History ; (3) Greek History to Alexander ; (4) Roman History to Augustus.

The examination will be based upon the Students' Series for the East, and Greece, and upon Leighton's Rome.

LITERARY SCIENTIFIC COURSE.

The requirements for admission to the Literary Scientific Course are the same as for the Classical Course excepting that in place of Greek an equivalent in French, or in German, or in some of the Sciences will be required.

SCIENTIFIC DEPARTMENTS.

The Mathematics, English and Geography as specified in the requirements for the Classical Department are required for admission to the Scientific Departments, except that for entrance to the Engineering Department both *Plane and Solid Geometry* are now necessary. This Department will probably soon make the further requirement of Higher Algebra. For admission to the Chemical and Medical Departments, consult the fuller statement of these departments.

Examinations for admission will be held in the *College Building* at the close and at the opening of each college year. See calendar.

ADMISSION BY CERTIFICATES.

Candidates will be admitted to any of the above Departments *without examination*, in case they bring certificates of graduation from Preparatory Schools whose courses of study fully meet the above requirements. If the certificate is defective in respect to any

required study, the student will be examined in that study. Certificates must be made out in blank forms furnished by the Secretary of the Faculty. Students admitted by certificate will be regarded as being on probation during the first half year.

ADMISSION OF SPECIAL STUDENTS.

Persons of suitable age and attainments may, by special permission of the Faculty and by the payment of a specified fee, pursue certain studies in connection with the regular college classes without becoming matriculate members of the University. The classes which are open to such students, with the conditions of admission, will be made known upon application to the President. Special Students are members of the University from the time of their admission, but are not candidates for a degree. They enjoy the privileges of the University and are subject to all its regulations.

REGISTRATION.

Every student upon entering the University is required to present his papers to the President on the Tuesday preceding the opening of the annual session. Upon approval, he will receive from the President a Certificate of Admission. On the following Saturday the student is to deliver his certificate to the Registrar, and to enter his name upon the University Register. He will receive from the Registrar a Certificate of Registration which is to be delivered to the Treasurer, whereupon he becomes entitled to pay the entrance fee of ten dollars. The Treasurer's receipt is to be returned to the Registrar for record, after which the student will be considered a regular member of the University.

COURSES OF INSTRUCTION.*

GREEK.

1. Lysias, Selections.—Plato, Apology and Crito.—Homer, Odyssey, four or five books.—Prose Composition, Exercises based to some extent upon the authors read.

Required, Freshman year, four hours.

2. Euripides, Ion, introduction to study of the Greek Drama.—Thucydides, Book VII.—Sophocles, Oedipus Rex.—Prose Composition, for a part of the year.

Elective, three hours.

[Candidates for Sophomore Honors are required to read in addition one play and specified portions of Homer and Demosthenes.]

3. Pausanias, Book I, with special study of the monuments of the Acropolis. Lectures, collateral reading, theses.

Elective, three hours.

[Course 3 will be changed in alternate years so that a student who wishes to elect it for two years may do so with profit.]

4. Advanced course, conducted in connection with Course 3, and open only to those who have taken courses 2 and 3.

PROFESSOR WHEELER.

LATIN:

1. Livy.—Tacitus.—Horace, Odes.—Prose Composition.

Required, Freshman year, four hours.

2. Cicero.—Plautus.—Terence.—Horace, Epistles.

Elective, three hours.

3. Quintilian.—Horace, Satires.—Juvenal.—Persius.

Elective, three hours.

4. Catullus.—Lucretius.—Early Latin.

Advanced course, open only to those who have taken courses 2 and 3.

Elective, two hours.

PROFESSOR GOODRICH.

*When not otherwise specified, courses run through the year.

ENGLISH.

1. Rhetoric, Composition, and Study of Words.—Elementary Course.—Text books, Hill's Principles of Rhetoric, and Trench on the Study of Words.

Required, Freshman year, two hours.

PROFESSOR AXSON.

2. Criticism and Composition.—Genung's Rhetoric and Rhetorical Analysis.—Chamberlain's Rhetoric of Vocal Expression with interpretation of Shakspeare's Romeo and Juliet, and Midsummer Night's Dream.—Lectures on the development of English Prose.—Weekly exercises in composition.—Inductive Study of selected prose masterpieces of Defoe, Swift, Addison, Johnson, Goldsmith, Burke, De Quincy, Carlyle, Macaulay, Ruskin, Cardinal Newman and James Russell Lowell.

Required, Sophomore year, four hours.

PROFESSOR KITCHIN.

3. English Literature.—Lectures and Recitations on the history of English Literature.—Class readings illustrative of the great literary epochs.

Elective, three hours.

PROFESSOR AXSON.

4. Poetry of the Nineteenth Century.—Lectures and Seminary work in the study of the chief poets of the century.

Elective, three hours.

PROFESSOR AXSON.

5. Elizabethan English, Shakspeare.—This course is both philological and literary ; twenty-four plays are read, ten tragedies, four historical plays, and ten comedies. Of these, King Lear, Macbeth, Hamlet, Henry V., The Merchant of Venice, and As You Like It, are read in class with attention to

language and textual interpretation. The remaining plays are read privately.

Elective, three hours.

PROFESSOR KITCHIN.

6. **History of American Literature.**—Literature and learning in America during the 17th and 18th centuries ; Selected masterpieces of Irving, Cooper, Bryant, Poe, Thoreau, Holmes, Whittier, Whitman and Lowell.—During the second half year the writings of Hawthorn, Emerson, and Longfellow are studied.

Elective, two hours.

PROFESSOR KITCHIN.

7. **Anglo-Saxon and Middle English.**—This course continues through two consecutive years, and is open to Juniors and Seniors.

Elective, two hours.

Not given in 1898-94.

PROFESSOR AXSON.

Members of the Freshman and Sophomore classes are required to deliver two selected declamations during the year. Juniors are required to debate three times during the year, and Seniors are required to deliver two original orations, or write four essays during the year.

FRENCH.

1. **Otto's French Grammar (Bôcher).**—Blouet's Class Book of French Composition.—Exercises in conversation based on the Meisterschaft System.—Fénelon.—Corneille.—Racine.
Alternative for Literary-Scientific Freshmen and for Classical Sophomores with German 1, four hours.

PROFESSOR HUFF.

2. The Life and Writings of Molière.—Translation and critical study of *Les Précieuses Ridicules*, *L'École des Femmes*, *Tartuffe*, *Le Bourgeois Gentilhomme*, *Le Misanthrope*, *Les Femmes Savantes*.—Outlines of the History of French Literature from 1630 to 1830.

Elective, three hours.

PROFESSOR KITCHIN.

3. Introduction to Balzac's *Comédie Humaine*.—Lectures and collateral reading.—*Le Père Goriot*, *Eugénie Grandet*, *Le Curé de Tours*.—In addition to this, candidates for honors must read *Le Lys dans la Vallée*, *Le Cousin Pons*, *La Peau de Chagrin*.

Elective, two hours.

[This course is open only to those who have had two years of French.]

PROFESSOR HUFF.

GERMAN.

1. a. Elementary German.—Whitney's *German Grammar*.—Brandt's *German Reader*.
 b. The German Novel since Goethe's death.—Storm's *Immensee*, Heyse's *L'Arrabiata*, Auerbach's *Brigitta*, Eber's *Eine Frage*, Riehl's *Der Fluch der Schönheit*.—Lectures and Composition.

Alternative for Literary-Scientific Freshmen and for Classical Sophomores with French 1; open also to Juniors, four hours.

PROFESSOR KITCHIN.

2. a. Syntax.—Exercises in conversation based on the *Meisterschaft System*, Stein, Meissner, etc.—Schiller, *Gedichte*, *Die Piccolomini*.

- b. Study of Goethe, with Historical Introduction to Faust.

Elective, three hours.

PROFESSOR HUFF.

3. Historical and Scientific German.—Selections from the writings of recent historians and scientists. This course is intended to give the student a working knowledge of modern German prose.

Elective, two hours.

PROFESSOR KITCHIN.

ITALIAN.

Sauer's Italian Conversation Grammar.—Exercises in Composition.—
Selections from Boccaccio and Petrarca.—Dante's Divina
Commedia.

Elective, three hours.

[At least two years of French should precede this course.]

PROFESSOR HUFF.

PHILOSOPHY.

1. Elementary Course.—Preliminary survey of Human Faculty; Hopkins' Outline Study of Man.—Logic; Minto's Logic Inductive and Deductive.—Introduction to Ethics; Muirhead's Elements of Ethics.

Required, Junior year, two hours.

2. Advanced Course.—Psychology; Physiological and Introspective; Lectures and text-book; Höffding's Outlines of Psychology.—Theoretical Ethics; Lectures and text-book; Janet's Theory of Morals.—Theism; Text-book; Flint's Theism.
Elective, four hours.

3. History of Philosophy.—Lectures and text-books ; Zeller's Outline of the History of Greek Philosophy, Falckenberg's History of Modern Philosophy.
Elective, two hours.
4. Metaphysics.—The Critical Philosophy.—Lectures and text-book. Watson's The Philosophy of Kant in Extracts.
Elective, Senior year, first half, two hours.
5. Fine Art.—Text-book and lectures.—J. Torrey's A Theory of Fine Art.
Elective, second half, two hours.

PROFESSOR TORREY.

HISTORY.

1. General History, Ancient, Classical, Medieval.
Required, Sophomore year, four hours.
2. French History.—The Absolute Monarchy, Revolution.
Elective, three hours.
3. English Institutions.—Parliamentary Government.
Elective, three hours.
4. Modern History.—The Modern State.—Democracy.—The Industrial Revolution.
Elective, three hours.

[Course 4 omitted in 1893-94.]

PROFESSOR EMERSON.

POLITICAL SCIENCE.

1. Political Economy.—Elementary course ; the subject is treated as an abstract science.—During second half year seminars are held to discuss reports on the industrial and charita-

ble institutions of the town.—Francis A. Walker's Advanced Political Economy.

Required, Junior year, two hours.

MR. CORSE.

2. Political and Financial History of United States.—Lectures, Theory of Finance, Colonial systems of Finance and taxation. The Political History, beginning with the adoption of the Federal Constitution, is treated in connection with the fiscal policy of different administrations.
Elective, two hours, first half year.

MR. CORSE.

3. Sociology.—Origin and Development of Social Institutions. Advanced course.

Elective, two hours, second half year.

PROFESSOR EMERSON.

4. Constitutional History; Lectures, Cooley's U. S. Constitution.—International Law; Woolsey's International Law the basis of instruction.—Political Economy, applied to open questions by lectures and discussions.

Elective, two hours.

PRESIDENT BUCKHAM.

MATHEMATICS.

1. a. Algebra.—Binomial and Exponential Theorems. Theory of Equations. Wentworth's College Algebra.
b. Geometry.—Solid and Spherical. Chauvenet's Geometry.
c. Trigonometry.—Plane and Spherical. Miller's Trigonometry.
Prescribed, Freshman year, five hours.

MR. CORSE.

2. a. Review of Analytical Trigonometry, followed by Analytical Geometry, with Lectures on the Synthetical Geometry of Conics and on Higher Plane Curves.
 - b. Elements of Differential and Integral Calculus.—Text books and lectures.
- Required of Students in the Engineering Department.*
Elective for others, four hours.

PROFESSOR DANIELS.

3. a. Synthetic Geometry; Method used in the solution of Geometric problems.
 - b. Introduction to the modern Projective Geometry.
- Elective, three hours.*

PROFESSOR DANIELS.

4. a. Differential and Integral Calculus: Advanced Course.
 - b. Ordinary and Partial Differential Equations with applications to Mechanics and Physics.
- Elective, three hours.*

[Courses 3 and 4 will be given in alternate years.]

PROFESSOR DANIELS.

The Honor Examinations for the Sophomore year will be on the geometrical and algebraical study of complex numbers, with Demoivre's Theorem and the Theory of Equations.

A candidate for Senior Honors may choose his subject from studies in Analytical Geometry, Modern Geometry, Higher Algebra, Differential Equations, Mathematical Physics.

PHYSICS.

1. General Properties of Matter.—Dynamics.—Acoustics.—Optics.
- Elective, first half year, four hours.*
Required for students in the Engineering Department.

2. Cosmical Physics and Astronomy.

Elective, second half year, two or three hours.

3. Heat, Magnetism, and Electricity in their practical applications.

Elective, second half year, two or three hours.

Required for Electrical Engineering students.

PROFESSOR DANIELS.

NATURAL SCIENCE.

1. Physiology and Hygiene.—Lectures.

Required, Freshman year, one hour.

PROFESSOR PERKINS.

2. Physiology, Advanced Course.—Recitations and Lectures.—

Martin's Human Body.

Elective, second half year, two hours.

PROFESSOR PERKINS.

3. Elements of the Biology of Plants.—A study of the vegetable cell, and of a few typical species of plants.—Lectures and laboratory work.*

*Required for Juniors in the Agricultural Department ;
Elective for students from other Departments who have
taken Chemistry 1, first half year, three hours.*

[This course with four laboratory sessions per week may
be elected as course 3a.]

PROFESSOR JONES.

4. Elements of the Biology of Animals.—Lectures and laboratory work.

*Elective for students who have taken Chemistry 1, second
half year, three hours.*

PROFESSOR PERKINS.

*In laboratory work two hours count as one.

5. **Advanced Biology of Animals.**—Laboratory work in the study of Vertebrate Morphology.
Elective for students who have taken course 4, four to twelve hours.
PROFESSOR PERKINS.
6. **Entomology.**—Laboratory course in Structural and Systematic Entomology with special reference to insects which are injurious to vegetation.
PROFESSOR PERKINS.
7. ***Elements of the Morphology and Classification of Phanerogams.**—Recitations and laboratory work.
Required for Sophomores in the Agricultural Department; Elective for other students, three hours.
PROFESSOR JONES.
8. **Physiology of Plants.**—Lectures, reading and laboratory work.
Open only to students who have taken courses 3 and 7, and by special permission of the instructor, second half year, two hours.
9. **Mycology.**—A study of Fungi as related to the diseases of Plants.—Lectures, reading and laboratory work.
Required of Seniors in the Agricultural Department, and open to others by permission of the instructor, Second half year, three hours.
PROFESSOR JONES.
10. **Photographic Methods in Botany.**
Elective, one hour.
Open to students who have taken courses elsewhere and to others by permission of the instructor.
PROFESSOR JONES.
11. **Geology.**—Recitations and lectures.—Le Conte's Elements.
Elective, second half year, three hours.
PROFESSOR PERKINS.

*Students who intend to take all the work offered in Botany should elect course 7 in the Sophomore year, and if possible courses 3 and 8 in the Junior year.

12. Anthropology.—Lectures.

Elective, first half year, three hours.

PROFESSOR PERKINS.

13. Mineralogy, Descriptive and Determinative.—Dana's Manual of Mineralogy.

Required for Engineers and Chemists, and open to Classical students who have taken Chemistry 1, first half year, three hours.

PROFESSOR LOOMIS.

Candidates for honors may select from some department of either Biology or Geology a subject for special and original investigation, which must be carried on under the direction of the Instructor ; the results must be presented at the close of Senior year in the form of a thesis.

ENGINEERING.

DRAWING.

I. 1. Elementary Projections.

Five hours, until December.

2. Descriptive Geometry.

Five hours, December until April.

3. Shades and Shadows.

Five hours, April until June.

4. Pen Topography and Lettering.

Eight hours, second half year.

II. 1. Linear Perspective.

Four hours, until December.

2. Shading and Coloring.

Four hours, December until February.

3. Isometrical Projections.
Four hours, February until April.
 4. Detail Working Drawings of Machinery.
Five hours, first half year.
 5. Construction of Gear Teeth.
Four hours, second half year.
 6. Spherical Projections.
Four hours, April until June.
- III. 1. Mapping Surveys.
Ten hours, first half year.
2. Detail and Assembly Working Drawings of entire Machines.
Four hours, first half year.
 3. Stone Cutting.
Two hours, second half year.
 4. Structural Drawing.
Six hours, second half year.
- IV. 1. Problems in Designs.
Four hours, second half year.
2. Detail Drawing and Design.
Four hours, first half year.

SURVEYING.

- I. 1. Use of Instruments: Compass, Level and Transit ; Land Surveying ; Recitations and Field Work.
Four hours, second half year.
 2. Summer School of Surveying : Land Surveying, Traversing, Levelling and Topographical Surveying.
One month in summer vacation.
- II. 1. Computing and Plotting the work of the Summer School.
Three hours, first half year.

2. City Surveying : Solar Compass and Transit ; Recitations, Lectures and Field Work.
Three hours, second half year.
 3. Summer School of Surveying : Geodetic, Hydrographic and Topographical Surveying.
One month in the summer vacation.
- III.
1. Computing and Mapping the work of the Summer School.
Three hours, first half year.
 2. Railroad Surveying : Recitations and Field Work.
Three hours, second half year.

MECHANICS.

- I.
1. Forces and Motion. Recitations.
Five hours, until December.
 2. Stresses in Roof and Bridge Trusses. Recitations.
Five hours, from December until April.
 3. Strength of Materials : Theory of Flexure and Torsion.
Recitations.
Five hours, April until June.
- II. Hydrostatics and Hydraulics. Recitations.
Four hours until April.
- III. Graphical Statics : Study of Arches, Domes and Retaining Walls.
Five hours, first half year.
- IV. Advanced Bridge Work. Lectures and Recitations.
Three hours, second half year.

CIVIL ENGINEERING.

- I. Materials, their properties, preparation and use.
1. Limes, Cements, Mortars, Brick and Stone. Lectures.
Two hours, first half year.

- 2. Timber, Iron and Steel. Lectures.
Two hours, second half year.
- II. 1. Foundations of Structures on Land and in Water.
Lectures.
Two hours, until December.
- 2. Construction of Roads and Pavements : Railway Construction and Equipment. Lectures.
Two hours, December until second half year.
- 3. River Improvements : Harbor and Canal Construction.
Lectures.
Two hours, second half year.
- III. Contracts and Specifications. Lectures.
Two hours, first half year.

SANITARY ENGINEERING.

- I. Water Supply, Sewerage, general principles of Plumbing and Heating, with details of construction. Lectures.
Three hours, second half year.

PROFESSOR BARBOUR.

PROFESSOR VOTEY.

MECHANICAL ENGINEERING.

- I. 1. Elements of Mechanism.
Two hours, first half year.
- 2. Gearing and Machine Tools.
Three hours, second half year.
- II. 1. Valve Gears and Thermodynamics.
Four hours, first half year.
- 2. Thermodynamics : Boilers, Pumps and Injectors.
Three hours, second half year.

3. Laboratory Work : Engine and Boiler Tests.
Two hours, second half year.
- III. 1. Dynamics of Machinery.
Three hours, first half year.
2. Locomotive and Marine Engineering.
Three hours, second half year.
3. Machine Design.
Two hours, first half year.
4. Laboratory Work : Pumps and Power Tests, and Strength of Materials.
Two hours, throughout the year.

SHOP-WORK.

- I. 1. Carpentry.
Two hours, first half year.
2. Wood Turning and Pattern Making.
Two hours, second half year.
- II. 1. Forging of Iron and Steel.
Two hours, first half year.
2. Chipping, Filing and Scraping.
Two hours, second half year.
- III. 1. Machine Shop Work.
Three hours, entire year, except last four weeks.
2. Moulding and Founding.
Three hours, last four weeks of year.

PROFESSOR AYER.

MR. EATON.

ELECTRICAL ENGINEERING.

- I. Physics and Physical Laboratory.
Five hours, second half year.

- II. 1. Theory of Potential.
Three hours, first half year.
2. Electrical Laboratory.
Two hours, first half year.
- III. 1. Electrical Machines and Measuring Instruments.
Four hours, second half year.
2. Electrical Laboratory.
Two hours, second half year.
- IV. 1. Technical Applications of Electricity.
Three hours, first half year.
2. Electrical Laboratory.
Three hours, first half year.
- V. 1. Construction of Dynamo-Electric Machinery and Transmission of Energy.
Five hours, second half year.
2. Electrical Laboratory.
Three hours, second half year.

PROFESSOR SHIELDS.

CHEMISTRY.

1. a. General Chemistry.—Lectures.
Four hours, first half year.
- b. Laboratory Work.—Elementary Experiments and Elementary Qualitative Analysis.
Six to eight hours, second half year.
Elective for students in the Classical Department.
2. Qualitative Analysis.—Advanced Course ; Laboratory work, with occasional class meetings and recitations.
Ten to fifteen hours, one-half year.
3. Quantitative Analysis.—Laboratory work, with class meetings for discussion of methods.
Fifteen hours, one year or longer.

4. Stoichiometry.—Lectures.
Two hours, one-half year.
5. Industrial Chemistry.
 - a. Assaying.—Ores, furnace products, etc.
One half year. (Hours of work to be assigned.)
 - b. Lectures.—Inspection of constructional plans of works, with occasional excursions to manufacturing establishments, when such may be made conveniently.
One half year. (Hours of work to be assigned.)
6. History of Chemistry.—Lectures.
About eight weeks, one hour.
7. Organic Chemistry.
 - a. Lectures.—Theory and Synthesis of Carbon Compounds.
One year, two hours.
 - b. Laboratory work—Preparations of compounds, analyses, etc.
[Course 7 is given in alternate years.]

Practical use of the Spectroscope is offered to students who are qualified for that order of work, at some convenient time during the four years.

PROFESSOR MERRILL.
MR. STEARNS.

AGRICULTURE.

1. Farm Management and Farm Accounts : Economy, general and special farming, markets, buildings, selection of land, roads and fences, yearly plans.
One hour, first half year. MR. GULLEY.
2. Farm Implements and Hand Tools : Plows, harrows, cultivators, rollers, mowing and harvesting machines, cutters, spade, hoe, etc., etc.
One hour, second half year. MR. GULLEY.

HORTICULTURE.

1. **Market Gardening and Floriculture:** Methods of propagation, men fitted for the work, sites, hot-beds and forcing houses, tools, proper soils, shipping, markets, special treatment of different vegetables and floral products.
Three hours, first half year
 2. **Fruit Culture, Landscape Gardening, and Forestry:** Fruit growing, localities, soils, markets, protection, tools, pruning, shipping, nursery growing, budding and grafting; how to lay out and plant grounds and roads, budding plants, trees and shrubs; forest planting, where profitable, how to plant.
Three hours, second half year. **MR. GULLEY.**
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VETERINARY SCIENCE.

1. **Comparative Anatomy of Domestic Animals:** Bones, joints, muscles, arteries, nerves and viscera; by lecture, chart and dissection.
Two hours, first half year.
2. **Comparative Physiology of Domestic Animals:** Circulation, respiration, food and digestion, absorption, secretion, metabolism of tissue, animal heat, nutrition and diet, nervous system, special senses, reproduction, development.
Three hours, second half year.
3. **Histology:** Methods of hardening and straining tissues, mounting specimens, microscopic study of specimens.
Two hours, first half year.

4. Bacteriology: Diseases of Animals: Preparation of Nutrient media ; methods of cultivation, staining, inoculation, etc. Pathology ; symptoms and differential diagnosis of contagious diseases of domestic animals ; disinfection, immunity.

Three hours, first half year.

DR. RICH.

CLASSICAL DEPARTMENT.

FACULTY.

MATTHEW H. BUCKHAM, D. D., *Political and Social Philosophy.*

HENRY A. P. TORREY, A. M., *Intellectual and Moral Philosophy.*

GEORGE H. PERKINS, Ph. D., *Zoology, Botany and Geology.*

JOHN E. GOODRICH, A. M., *Latin.*

SAMUEL F. EMERSON, Ph. D., *History.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics and Physics.*

JAMES R. WHEELER, Ph. D., *Greek.*

LEWIS J. HUFF, Modern Languages.

WILLIAM C KITCHIN, A. M., Modern Languages.

JOSEPH K. CHICKERING, A. M., *Rhetoric and English.*

STOCKTON AXSON, A. M., *Rhetoric and English.*

FREDERICK M. CORSE, A. M., *Mathematics.*

HERBERT E. TUTHERLY, Military Science and Tactics.

ELECTIVE AND REQUIRED STUDIES.

I. Candidates for the degree of A. B., after pursuing a required course of Greek, Latin, Mathematics, English, and Hygiene through the Freshman year, are allowed to elect a certain number of their studies, the number increasing in the later years of the College course until the Senior year, when all studies except those of the Military Department, are elective. Each student is required to take such a number of electives as will bring his total work up to fifteen recitation or lecture hours per week, not including those of Military Drill. The abuse to which a system of perfectly free electives is liable is avoided by the requirement of a certain number of studies which are intended to secure some completeness and symmetry of discipline, while the number of electives permitted gives room for the development of special talents and the following out of individual predilections. The electives are offered in such a way as to permit extended study of

any subject or group of subjects of which the student may wish to make a specialty. For example, Greek, Latin, English, and Mathematics may be pursued through most of the time during the four years; French and German for three years; Physical Science, History, and the Social, Intellectual, and Moral Sciences, from two to three years.

The electives embrace studies in Greek and Latin; French and German, including studies in Comparative Literature; the higher Mathematics, including Calculus and the New Geometry; History; Political and Social Science; English Literature; Chemistry, theoretical and applied, with Laboratory work; Geology; Botany; Zoology; Biology; Anthropology; Metaphysics; the History of Philosophy; the theory of Fine Art.

Other subjects, in which classes are likely to be small, like Anglo-Saxon and Italian, will be offered occasionally, at such intervals as to give all students an opportunity to take them at some time during their college course.

II. Candidates for the degree of Ph. B. will have the same required courses and the same electives as candidates for the degree of A. B., except that omitting Greek they will begin the study of French and German one year earlier and will select in the second year from the more advanced electives.

III. Persons who may desire to take a short academic course preparatory to the study of medicine may take the first two years of the course leading to the degree of Ph. B., with any of the electives of the entire department for which they have the requisite preparation.

IV. Students in any of the other departments may, by special permission of the Faculty, take a limited number of electives from the Engineering and Chemical Departments.

V. It is assumed that the choice of electives will be made by the student with reference to some clear, deliberate purpose, and as the result of consultation with members of the Faculty. In all cases the natural sequence of studies must be observed. The Faculty

reserve the right to exclude a student from any course for which his previous studies have not properly prepared him.

The studies pursued and taught in the Classical Department are divided into seven sections :

1. Languages.
2. Moral and Intellectual Philosophy.
3. Social and Political Science.
4. History.
5. Rhetoric and English Literature.
6. Mathematics.
7. Natural Science.

DEPARTMENT OF ENGINEERING.

FACULTY.

- MATTHEW HENRY BUCKHAM, D. D., President, *Political Science*.
VOLNEY G. BARBOUR, Ph. B., C. E., *Bridge Construction and Mechanics*.
GEORGE H. PERKINS, Ph. D., *Natural History*.
JOSIAH W. VOTEY, C. E., *Civil Engineering*.
LEWIS J. HUFF, *Modern Languages*.
WILLIAM C KITCHIN, *Modern Languages*.
HARRY A. STORRS, C. E., *Electrical Engineering*.
WILLIAM J. SHIELDS, A. M., *Electrical Engineering*.
ARTHUR W. AYER, B. S., *Mechanical Engineering*.
NATHAN F. MERRILL, Ph. D., *Chemistry*.
HORATIO LOOMIS, Sc. D., *Mineralogy*.
ARCHIBALD L. DANIELS, Sc. D., *Mathematics and Physics*.
JOSEPH K. CHICKERING, A. M., *English Language and Literature*.
STOCKTON AXSON, A. M., *Rhetoric and Elocution*.
FREDERICK M. CORSE, A. M., *Mathematics*.
HERBERT E. TUTHERLY, Captain 1st U. S. Cavalry, *Military Tactics*.

CIVIL ENGINEERING.

Instruction is given by means of lectures, recitations, and work in the field and drawing-room. Technical essays are required at frequent intervals on topics connected with the various subjects as they are taken up. Excursions will be made by the classes to engineering works and work-shops for the study of details and methods of construction.

The studies pursued comprise :

Mathematics, including algebra, geometry, plane and spherical trigonometry, analytical geometry, and the elements of differential

and integral calculus: *General Chemistry, Botany, Astronomy, Physics, Geology, Mineralogy, French, German, Political Economy and English.*

Mechanics, including analytical and graphical determination of stresses in the various kinds of roof and bridge trusses, of the thrust and stability of arches and retaining walls, and of the flow of water in pipes and open channels. For the field work in hydraulics the department is equipped with triangular and rectangular wiers, floats and current meters, which are used by the students in determining the flow of streams.

Drawing, embracing general projection drawing, isometric, perspective, and topographical drawing, shading and coloring, spherical projections and map drawing, plans of surveys, ornamentation and lettering, and the detail and working drawings of structures in wood, iron and stone. This work is carried on throughout the entire four years.

Engineering Construction, including the general properties of building material, as stone, cements, mortar, brick, wood and the metals, the construction of foundations in water and on land, and of superstructures and tunnels, of highways and city streets, of railroads, canals, water works, drainage and sewerage works, and the improvements of harbors and rivers. In connection with the study of materials, tests of the strength of cements, wood, stone, iron and steel are made. For this work the department has a 2,000 pound Riehle cement tester, and a 50,000 pound Riehle general testing machine fitted for tensile, compressive or transverse tests, with a Henning & Marshall electric micrometer for measuring elongations.

Surveying, both theory and practice. The theory of instruments, and all the operations of surveying, laying out work, and computing, are explained in detail. The Summer School of surveying affords abundant opportunity for becoming familiar, by actual work in the field, with the methods of work and the use and adjustment of the instruments. The classes make surveys of fields, topographical surveys, surveys of rivers and harbors, surveys for roads and railroads, including running in curves, cross-sections, staking out, contouring,

and topography. The instrumental outfit includes compasses, levels, transits, plane tables, surveying camera, barometers and the usual equipment of smaller instruments. Maps and profiles of the work done in the field are made by the students, and the areas of fields, the cuts and fills, and the quantities of earth to be moved in the construction of roads, are computed.

Sanitary Engineering, including the subjects of sewerage, sewage disposal, water supply, the plumbing, heating and ventilation of buildings.

Attention is also given to the preparation of *Specifications* and *Contracts*.

In bridge work the theory of stresses, and the details of construction of the various classes of bridges are taken up. Drawings and blue prints of recent constructions from leading bridge companies are used to illustrate modern practice in this work.

The library and reading room are well furnished with engineering literature, the reading room being supplied with many of the American and foreign engineering periodicals.

The special studies of the department may be taken as a graduate course, occupying two years. Young men who are so situated as to be unable to take full work, but who would be glad to receive instruction in special branches, may, by permission of the President, and on giving evidence of sufficient preparation, join the classes in those studies, but they cannot be candidates for a degree.

SUMMER SCHOOL OF SURVEYING.

The field work in Surveying is carried on mainly at the Summer School of Surveying. This school is located each year near one of the large bays of Lake Champlain and the session occupies one month of the summer vacation. Attendance upon this course is required of the student in Civil Engineering in the Sophomore and Junior classes, and permission to attend may be granted to students from any other class or department. Any young

man not a member of the University, if properly fitted for the work, will be admitted to the school upon application.

For any member of the University there is a fee of five dollars for incidental expenses, and for any one not a member, in addition to this, a tuition fee of twenty dollars.

Text-books and books of reference.—Searle's and Henck's Field books; Johnson's Surveying; Clarke's Geodesy; Haupt's Topography; Wright's Adjustment of Observation; Merriman's Least Squares; Weisbach's Mechanics of Engineering; Lanza's Mechanics; Rankine's Civil Engineering; Latham's Sanitary Engineering; Fanning's Water Supply; Merriman's Hydraulics; Smith's Hydraulics; Burr's Elasticity and Resistance of Materials; Thurston's Materials of Engineering; Johnson's Modern Framed Structures.

FRESHMAN YEAR.

FIRST HALF YEAR. *Mathematics*.—Geometry and Algebra, five hours. *Chemistry*.—Lectures, four hours. *Drawing*.—Elementary projections and Descriptive Geometry, five hours. *English*.—Rhetoric Composition, two hours. *Hygiene*.—Lectures, one hour.

SECOND HALF YEAR. *Mathematics*.—Trigonometry and Surveying, five hours. *Descriptive Geometry and Shades and Shadows*, five hours. *Drawing*.—Topography and Lettering, four hours. *Hygiene*.—Lectures, one hour. *English*.—two hours. *Surveying*.

VACATION.

Summer School of Surveying, one month.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Mathematics*.—Analytical Geometry and Calculus, four hours. *Spherical Trigonometry*.—two hours. *Physics*.—four hours. *German*.—three hours. *Drawing*.—Shading and Tinting, and Perspective, four hours. *Surveying*.

SECOND HALF YEAR. *Mathematics.*—Calculus, four hours. *Astronomy.*—two hours. *Physics.*—four hours. *German.*—three hours. *Drawing.*—Isometrical Projections and Spherical Projections, four hours. *Surveying.*

VACATION.

Summer School of Surveying, one month.

JUNIOR YEAR.

FIRST HALF YEAR. *Mathematics.*—Integral Calculus, three hours. *Mechanics.*—Forces and Motion; Stresses in Bridge and Roof Trusses, five hours. *German.*—Technical Reading, two hours. *Drawing.*—Mapping of Surveys, three hours. *Mineralogy.*—three hours. *Engineering Construction.*—Materials of construction, two hours.

SECOND HALF YEAR. *Mechanics.*—Stresses in Bridge and Roof Trusses; Strength of Materials; Theory of Flexure, five hours. *Engineering Construction.*—Materials of construction, three hours. *Railroad Engineering.*—Lectures and Field Work, three hours. *Geology.*—three hours. *Drawing.*—Stone Cutting, Structural Drawing, two hours.

SENIOR YEAR.

FIRST HALF YEAR. *Mechanics.*—Hydrostatics and Hydraulics, four hours. *Graphical Statics.*—Study of Arches, Domes, and Retaining Walls, five hours. *Contracts and Specifications.*—two hours. *Engineering Construction.*—Foundations, Roads and Pavements, Railroads, two hours. *Drawing.*—Detail Drawing and Designing, two hours.

SECOND HALF YEAR. *Engineering Construction.*—Rivers, Harbors and Canals, two hours. *Sanitary Engineering.*—Water supply, Sewerage, Plumbing, Heating and Ventilating, three hours. *Mechanics.*—Advanced Bridge Work, three hours. *Mathematics.*—

Least Squares, Higher Surveying and Practical Astronomy, three hours. *Theses.*

MECHANICAL ENGINEERING.

The instruction in Mechanical Engineering is intended to furnish the student with such training as will enable him to solve most advantageously the problems which arise in the practice of his profession, namely, those relating to the generation and transmission of power, and its application to the arts. The fact is recognized that such training cannot be gained in the recitation and lecture rooms alone, and in consequence a considerable portion of the student's time is spent in the drawing-room and workshops, and in the engineering laboratory.

No strictly professional subjects are taken up in the Freshman year, but much time is devoted to mathematics and drawing, these being considered the most important factors in the work of the following years. The Sophomore year is devoted to the more elementary subjects of the profession, such as elementary combinations in machines, gear-tooth construction, and the mechanism of machine tools. The Junior year is devoted almost wholly to steam engineering, and the Senior year to machine design and to advanced and special lines of professional work. Outside the department, instruction is given in German, the higher mathematics, physics and general mechanics.

Shop Equipment : The carpenter's and pattern shop contains, in addition to carpenter's benches, and a full line of tools for manual work, six wood-turning lathes, an eighteen inch pattern-maker's lathe, circular saw, and scroll saw. The foundry is supplied with a cupola furnace, brass furnace, core-oven and accommodations for six students in moulding. The forge shop contains eight forges and anvils, a hand drill, and all the hand tools necessary for instruction in this branch. The machine shop is equipped with filing and chipping benches, four engine lathes, a hand lathe, a planer, a shaping

machine, two upright drills, a milling machine, a grindstone, and emery wheels. A grinding machine will soon be added.

Mechanical Engineering Laboratory. A twenty-five horse-power Harris-Corliss engine, which also provides power for the shops, and a fifty horse-power tubular boiler are available for engine and boiler tests. A surface condenser and air-pump have recently been added, and are used in connection with the engine during tests. The laboratory contains also a friction brake, a pair of Crosby indicators, a planimeter, several calorimeters, and numerous minor pieces of apparatus used in connection with these.

FRESHMAN YEAR.

FIRST HALF YEAR. *Mathematics.*—Algebra and Solid Geometry, five hours. *Chemistry.*—Lectures, four hours. *Drawing.*—Elementary Projection and Descriptive Geometry, five hours. *English.*—Rhetoric and Composition, two hours. *Hygiene.*—Lectures, one hour.

SECOND HALF YEAR. *Mathematics.*—Trigonometry and Surveying, five hours. *Drawing.*—Descriptive Geometry, five hours. *Chemistry.*—Laboratory, two hours. *English.*—two hours.—*Hygiene.*—one hour. *Shopwork.*—Carpentry, two hours.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Mathematics.*—Analytical Geometry, four hours. *Mechanical Engineering.*—Elementary Mechanism, two hours. *Drawing.*—Details of Machinery, one hour. *Physics.*—Lectures, four hours. *Elementary German.*—three hours. *Shopwork.*—Wood-turning and Pattern Making, two hours.

SECOND HALF YEAR. *Mathematics.*—Calculus, four hours. *Mechanical Engineering.*—Mechanism, Gear Teeth and Machine Tools, three hours. *Drawing.*—Details of Machinery, and Construction of Gear Teeth, two hours. *Physics.*—Heat and Electricity, Lectures three hours. *German.*—three hours.

JUNIOR YEAR.

FIRST HALF YEAR. *Mathematics.*—Integral Calculus, three hours. *Mechanical Engineering.*—Valve Gears and Thermodynamics, four hours. *Mechanics.*—General Statics, Roof and Bridge Trusses, five hours. *Drawing.*—Detail and Assembly Drawing of Machines, two hours. *German.*—two hours. *Shopwork.*—Forging, two hours.

SECOND HALF YEAR. *Mathematics.*—Spherical Trigonometry and Astronomy, three hours. *Mechanical Engineering.*—Thermodynamics, Boilers, Pumps and Injectors, three hours. *Mechanics.*—Strength of Materials, five hours. *Mechanical Engineering Laboratory.*—Engine Tests, two hours. *Shopwork.*—Forging, Chipping and Filing, two hours.

SENIOR YEAR.

FIRST HALF YEAR. *Mechanical Engineering.*—Dynamics of Machines, three hours. *Mechanical Engineering Laboratory.*—Engine and Boiler Tests, two hours. *Hydraulics.*—four hours. *Materials of Construction,* three hours. *Shopwork.*—Machine Shop, three hours.

SECOND HALF YEAR. *Mechanical Engineering.*—Locomotive and Marine Engineering, three hours. *Machine Design.*—two hours. *Mechanical Engineering Laboratory.*—Pump and Power Tests, and Strength of Materials, two hours. *Shopwork.*—Machine Shop, Moulding and Founding, three hours. *Theses.*

ELECTRICAL ENGINEERING.

The courses in Electrical Engineering are designed to fit students for practical electrical work. The leading subjects of study are Mathematics, Mechanical Engineering, and Electricity, but some

work in Literature, History and Modern Languages will also be required.

The technical studies are of two kinds, theoretical, and practical or experimental. Preparatory to these, during the earlier years the student receives training in Mathematics, Chemistry, and Physics. Draughting work is pursued during the first three years, by a progressive series of exercises leading to problems in machine designing and including the making of working drawings, blue prints, etc. During the latter part of Sophomore year and throughout Junior and Senior years the work is conducted in the physical, electrical and engineering laboratories, and is intended to give the student scientific training. The study of Mechanics, with appropriate laboratory work, is taken up in Junior year and is continued during Senior year in special lines. Steam, also, and Mechanical Engineering are important subjects of study in the Electrical Engineering work. In general, a student follows nearly the same line of study in Electrical as in Mechanical Engineering, except that a part of the shop work and mechanical laboratory work is omitted to give place to special subjects in Electrical Engineering. These subjects which begin with Junior year include the theory of Potential, Electrical Measuring Instruments, Dynamo-Electric Machinery, etc., with laboratory work, such as the use of testing apparatus for measuring resistances, insulation, and capacity, the testing of dynamos and motors, storage batteries, commercial ammeters and voltmeters, arc lamps, etc.

Careful oversight is given in all laboratory work. It is the aim to afford each student such assistance and direction in his work as is necessary to prevent mere trifling with apparatus. At the same time, every effort is made to encourage habits of independent thought and self-reliance in manipulating electrical instruments and machines. Original investigations will be permitted when deemed beneficial to the student, chiefly as an aid in the preparation of the graduating thesis. Technical essays involving a study of different authorities

and of the latest published articles are frequently prepared by each student and presented for discussion in the class room. The library is well supplied with electrical and other scientific papers, and with standard works on electricity.

The electrical equipment includes galvanometers of recent design for accurate work, sets of standard resistance coils, a Wheatstone bridge, Thomson's electrical balance of wide range, also his graded voltmeter and electrometer, a Cardew voltmeter, and standard commercial voltmeters and ammeters, besides much apparatus suitable for the use of the less experienced students. A dynamo, specially designed, and provided with extra armature and field coils, enables the student to learn by actual tests the relative merits of different types of "direct current" arc and incandescent dynamos. There are also two dynamos of standard makes, viz :—an Edison 100-light and a Thompson-Houston 4 arc light machine ; all these are used in generating electricity for the lamps which light the engineering building and shops, and for charging the secondary battery, as well as for tests of lamps, motors, etc. Sixty accumulators—mostly of the Julien type, and many varieties of primary batteries are available for experiments. One of the "direct current" machines may be fitted up with "collector rings" for delivering "single phase" and "three phase" alternating currents. It is expected that an "alternating current" dynamo with accessories will soon be procured.

FRESHMAN YEAR.

FIRST HALF YEAR. *Mathematics.*—Algebra, Solid Geometry, five hours. *Chemistry.*—Lectures, four hours. *Drawing.*—Elementary Projections and Descriptive Geometry, five hours. *English.*—Rhetoric and Composition, two hours. *Hygiene.*—one hour.

SECOND HALF YEAR. *Mathematics.*—Higher Algebra, Trigonometry and Surveying, five hours. *Drawing.*—Descriptive Geom-

etry, five hours. *Chemistry*.—Laboratory, two hours. *English*.—Rhetoric and Composition, two hours. *Hygiene*.—Lectures, one hour. *Shopwork*.—Carpentry, two hours.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Mathematics*.—Analytical Geometry, four hours. *Mechanical Engineering*.—Elementary Mechanism, two hours. *Drawing*.—Details of Machinery, one hour. *Physics*.—Lectures, four hours. *German*.—three hours. *Shopwork*.—two hours.

SECOND HALF YEAR. *Mathematics*.—Differential Calculus, four hours. *Mechanism*.—Gear Teeth, and Machine Tools, three hours. *Physics*.—Heat and Electricity, three hours. *German*.—three hours. *Physical Laboratory*.—two hours. *English*.—Technical essays, one hour. *Drawing*.—two hours.

JUNIOR YEAR.

FIRST HALF YEAR. *Mathematics*.—Integral Calculus, three hours. *Electricity*.—Theory of Potential, three hours. *Steam Engineering*.—Valve Gears and Thermodynamics, three hours. *Mechanics*.—General Statics, five hours. *Drawing*.—Detail and Assembly Drawings of Machines, two hours. *Physical Laboratory*.—two hours.

SECOND HALF YEAR. *Electricity*.—Electrical Machines, three hours; Electrical Instruments, one hour. *Mechanics*.—Strength of Materials, five hours. *Steam Engineering*.—Thermodynamics, Boilers, etc., three hours. *Drawing*.—Problems in Design, two hours. *Physical Laboratory*.—two hours. *Shopwork*.—Chipping and Filing, two hours.

SENIOR YEAR.

FIRST HALF YEAR. *Electrical Engineering*.—Technical Application of Electricity to the Telegraph, Telephone, and Electric Light,

three hours. *Mechanics*.—Hydrostatics and Hydraulics, four hours. *Mechanical Engineering*.—Dynamics of Machines, three hours. *Physical Laboratory*.—Electrical Testing, three hours. *Shopwork*.—Machine Shop, three hours.

SECOND HALF YEAR. *Electrical Engineering*.—Construction of Dynamo-Electric Machinery and Transmission of Energy, three hours. *Mechanics*.—Study of Prime Movers and Power Plants, two hours. *Physical Laboratory*.—Electrical Testing, three hours. *Advanced Physics*.—Memoirs, etc., two hours. *Shopwork*.—Machine Shop, two hours. *Theses*.

DEPARTMENT OF CHEMISTRY.

FACULTY.

MATTHEW H. BUCKHAM, D. D., President, *Political and Social Philosophy.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

HORATIO LOOMIS, Sc. D., *Mineralogy.*

GEORGE H. PERKINS, Ph. D., *Natural History.*

HENRY A. P. TORREY, A. M., *Logic, Ethics and Theism.*

SAMUEL F. EMERSON, Ph. D., *History.*

LEWIS J. HUFF, *Modern Languages.*

WILLIAM C KITCHIN, Ph. D., *Modern Languages.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics and Physics.*

JOSEPH K. CHICKERING, A. M., *English Language and Literature.*

FREDERICK M. CORSE, A. M., *Economics and Mathematics.*

HARRY A. STORRS, C. E., *Electrical Engineering, Drawing.*

WILLIAM J. SHIELDS, A. M., *Electrical Engineering.*

JOHN B. STEARNS, B. S., *Chemistry.*

STOCKTON AXSON, A. M., *English and Rhetoric.*

HERBERT E. TUTHERLY, Captain 1st Cavalry, *Military Science and Tactics.*

In this Department, the student, after attending about sixty lectures and recitations in General Chemistry, enters the laboratories where he pursues graded and systematic work, beginning with a schedule of experiments illustrating fundamental principles and cultivating familiarity with the common elements and their compounds. From the outset quantitative methods are followed, as far as practicable.

Qualitative Analysis is next studied. The work includes the use of the spectroscope and qualitative examination of commercial products. Lectures and recitations continue through the course.

After the completion of Qualitative Analysis, Quantitative Analysis is begun, the student proceeding through the simpler determinations to more difficult analyses. The course embraces gravimetric and volumetric methods with applications to analysis of commercial products. Occasionally the students meet together and present statements of work done in the laboratory with discussion of methods, etc. In this way, each student may derive benefit from the work done in the laboratory by the entire class.

In the Junior or Senior year Organic Chemistry is taken up both in the class-room and in the laboratory. This course involves the preparation of organic compounds and their analysis. Students of ability will be encouraged to undertake original investigations under the special supervision of the head instructor.

Lectures are given upon Industrial Processes and these lectures are occasionally supplemented with excursions to manufacturing establishments. In the third year facilities are offered, and instruction is given, in Crystallography, Mineralogy, and Assaying of Ores by both fire assay and wet assay. A short course of lectures on the history of Chemistry is given.

BOOKS OF REFERENCE IN CHEMISTRY.—Graham-Otto's *Lehrbuch der anorganischen Chemie*; Gmelin-Kraut's *anorganische Chemie*; Allen's *Commercial Analysis*; Battershall's *Food Adulteration*; Percy's *Metallurgy*; Eggleton's *Metallurgy*; Lunge's *Sulphuric Acid and Alkali, Coal Tar and Ammonia Industries*; Fresenius's *Quantitative Analysis*; Fresenius's *Qualitative Analysis*; Sutton's *Volumetric Analysis*; Roscoe's *Treatise on Chemistry*; Kolbe's *Lehrbuch der organischen Chemie*; Payen's *Précis de Chemie industrielle*; Wagner's *Chemical Technology*; Ostwald's *Solutions*; Ostwald's *Outlines of General Chemistry*; Blyth's *Composition and Analysis of Foods*; Blyth's *Poisons, Effects and Detections*; Crookes's *Select Methods in Chemical Analysis*; Pattison Muir's *Principles of Chemistry*; Mendeléeff's *Principles of Chemistry*; Sadtler's *Industrial Organic Chemistry*; Peters's *Modern Copper Smelting*; *Chemical Technology*, Groves & Thorpe; *Examination of Medicinal Chemicals*, Hoffmann & Power; *Annalen der Chemie und Pharmacie*; Watts's *Dictionary of*

Chemistry; Journal of the London Chemical Society; Zeitschrift für analytische Chemie; Berichte der deutschen chemischen Gesellschaft; American Journal of Chemistry; Chemical News; Annalen der Chemie und Pharmacie.

FRESHMAN YEAR.

FIRST HALF YEAR. *Required Studies*—Chemistry Lectures, four hours. Mathematics, five hours. Drawing, four hours. English, one hour. French, four hours.

SECOND HALF YEAR. *Required Studies*—Laboratory, six to eight hours. Mathematics, five hours. English, one hour. French, four hours.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Required Studies*—Laboratory, ten to fifteen hours. Physics, four hours. German, four hours. English, two hours. *Elective Studies*—Analytics, three hours. History, four hours. French, four hours.

SECOND HALF YEAR. *Required Studies*—Laboratory, fifteen hours. German, four hours. English, two hours. *Elective Studies*—Mathematics, History or French as in first half year. (Students are required to take one elective throughout the year).

JUNIOR YEAR.

FIRST HALF YEAR. *Required Studies*—Laboratory, including Mineralogy and Blow-pipe Determinations and Assaying, eighteen hours. Stoichiometry, two hours. English, two hours. *Elective Studies*—German, three hours. Calculus, two hours.

SECOND HALF YEAR. *Required Studies*—Laboratory, eighteen hours. English, two hours. Physiology, three hours. *Elective Studies*—German or Calculus as in first half year. (Students are required to take one elective throughout the year).

SENIOR YEAR.

FIRST HALF YEAR. *Required Studies*.—Laboratory, eighteen hours. Organic Chemistry Lectures, two hours. English, one hour.

SECOND HALF YEAR. *Required Studies*.—Laboratory. Organic Chemistry Lectures, two hours. Industrial Chemistry. History of Chemistry. Geology, three hours. Theses.

NOTE. The lectures in Organic Chemistry and in Industrial Chemistry are usually given to Juniors and Seniors together, in alternate years.

Certain of the studies of the Senior Year in the Classical Department may be optional with a corresponding amount of laboratory work throughout this year.

It is desirable that applicants for admission to full standing in the Chemical Department as candidates for its degree should have had the regular classical course—the usual preparation for college—at some school whose certificates are recognized by this University. In case of deficiency in Latin or Greek or in both of those languages in the preparatory course, the applicant may present himself for examination in French or German or in both; and satisfactory attainments in the elements of these languages will be accepted as substitution for Greek and Latin.

Students showing proper qualifications may be admitted to a special course in Chemistry by permission of the President and of the Professor of the Department; but such students cannot receive the degree.

DEPARTMENT OF AGRICULTURE.

FACULTY.

MATTHEW H. BUCKHAM, D. D., President, *Political and Social Philosophy.*

JOSEPH L. HILLS, B. S., *Agricultural Chemistry.*

GEORGE H. PERKINS, Ph. D., *Natural History.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

LEWIS R. JONES, Ph. B., *Botany.*

FRANK A. RICH, V. S., M. D., *Veterinary Medicine and Stock Breeding.*

ALFRED G. GULLEY, M. S., *Horticulture and Agriculture.*

JOSIAH W. VOTEY, C. E., *Surveying and Road Making.*

HORATIO LOOMIS, Sc. D., *Mineralogy.*

WILLIAM C KITCHIN, Ph. D., *English.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics and Physics.*

LEWIS J. HUFF, *Modern Languages.*

HARRY A. STORRS, C. E., *Electrical Engineering.*

WILLIAM J. SHIELDS, A. M., *Electrical Engineering.*

ARTHUR W. AYER, B. S., *Mechanical Engineering.*

FREDERICK M. CORSE, A. M., *Political Economy and Mathematics.*

STOCKTON AXSON, A. M., *Rhetoric and Elocution.*

HEMAN B. CHITTENDEN, A. M., *Mathematics and English.*

WILLIAM E. SIMPSON, *Dairying.*

HERBERT E. TUTHERLY, Captain 1st Cavalry, *Military Science and Tactics.*

The work of the Agricultural Department is intended to give the student both the theoretical and the practical knowledge necessary to make a success of farming, and at the same time to include enough of mathematics, literature, science and philosophy for a good general education.

Agriculture has a leading place and is studied continuously throughout the course. In the Freshman Year, Farm Management,

Accounts and Implements are the subjects of discussion. Preparation is made for the more thorough understanding of soils and fertilizers by the study of plant growth and a year's instruction in Chemistry with Laboratory Work. The subject of soils includes their origin, kinds, composition, tillage, drainage and fertilization. This is followed by crops, general and special, their values, uses and methods of cultivation.

Stock Feeding and Breeding are taught by lectures and text book, and abundant opportunity for illustration is found in the stock at the Experiment Station barn, as well as in the records of experiments. Exceptional facilities for instruction in dairying are afforded in connection with the Dairy School. Several of the better styles of separators, churns, butter-workers, milk testers, etc., are in use, and the student becomes familiar with the various systems, and expert in manipulating the apparatus.

Horticulture is taught by lectures and especially by practical work. The study embraces a year's course in market gardening, floriculture, fruit culture, nursery growing, landscape gardening and forestry. A green-house with four rooms is devoted to commercial vegetable and flower growing, and to the investigation of plant diseases. The students are taught the growing of different crops by the most improved methods, and gain valuable experience in seed planting, transplanting, potting, budding and grafting, and other modes of propagation, both in the house and in the field. They are also taught the handling of hot-beds and forcing houses. The orchard has an assortment of large and small fruits, where students can learn the proper methods of pruning and training.

Veterinary Science is a required study during one-half of the course. The student learns first the general structure of domestic animals by lectures, by the examination of charts and museum specimens, and by the dissection of the animals themselves. The physiology of domestic animals is next studied, then the microscopic structure of the various parts. The common diseases and their remedies are discussed in lectures, and free clinics are held for studying

these diseases in the living animals. In connection with the study of contagious diseases, laboratory work is given in bacteriology covering the preparation of nutrients, the making of pure cultures, etc., and the subjects of inoculation, disinfection and immunity are considered.

Botanical subjects are studied during the last three years of the course. The work upon the structure and classification of the flowering plants prefaces a careful study of the plant cell with the elements of physiological botany. Following this is a study of typical species of the lower plants (cryptogams) with special reference to their structure, function, development and relationship. The elective courses in Physiology of Plants and Advanced Biology offer an opportunity for independent work in any line that the student is prepared to follow to advantage. The instruction in Mycology includes both the laboratory study of the fungi causing plant diseases, and lectures and demonstrations upon the use of fungicides.

The spraying apparatus used in the Experiment Station work, the facilities of the green-house, and a collection of dried and alcoholic specimens furnish ample opportunity for practical work in this line. The botanical laboratory is supplied with simple and compound microscopes and the necessary chemicals and accessories. The herbariums of the University and Experiment Station are open to students in systematic botany.

The work in mathematics includes Solid Geometry, Advanced Algebra, Trigonometry, Land Surveying and Road Making.

More or less extended courses are taken in Chemistry, Entomology, Mineralogy and Geology.

Electives. During the Sophomore year students may elect Mathematics or Modern Languages, and during the last two years students are allowed to select studies from any of the departments of the University.

The Library is well supplied with standard works in the various departments of Agriculture, and the leading agricultural journals are

und in the reading room. Students also have the advantage of the presence of the Agricultural Experiment Station.

Students in the Agricultural Department are subject to the same regulations and requirements as other students, except that residents of Vermont are not required to pay tuition. There is an opportunity for several students to defray a part of their expenses by work.

SHORT COURSE IN AGRICULTURE.

Students who do not wish to take the full four years' course may take a special course of one year, or of two years, selecting such studies as they are fitted to pursue. Such students may receive certificates of proficiency, but are not candidates for a degree.

TEXT BOOKS AND BOOKS OF REFERENCE.

Stockbridge's Rocks and Soils; Stewart's Feeding Animals; Masby's Manual of Cattle Feeding; Miles' Stock Breeding; Beal's Grasses of North America; Storer's Agriculture, Cattle and Dairy Farming; Griffith's Treatise on Manures; Wyatt's Phosphates of America; Flint's Grasses and Forage Plants; Miles' Land Drainage.

Gray's Lessons and Manual; Gray's Structural Botany; Bessey's Botany; Sach's Physiology of Plants; Vine's Physiology of Plants; Heller's Fertilization of Flowers; Bennett and Murray's Cryptogamic Botany; Strasberger's Practical Botany; De Bary's Morphology and Biology of the Fungi; Plowright's British Uredineæ and Ustilagineæ; Ellis & Ernhardt's N. A. Pyrenomycetes, etc.

Henderson's Gardening for Profit; Thomas' Fruit Culturist; Mearns' Landscape Gardening; Bailey's Horticulturists' Rule Book; Millar's Forestry.

Strangeway's Veterinary Anatomy; Klein's Elements of Histology; Linsley's and Frankel's Bacteriology; Billings' Animal Diseases and Public Health, Diseases of the Horse; Comstock's Introduction to Entomology; Packard's Guide to the Study of Insects; Morris's Insects Injurious to Vegetation; Weed's Insects and Insecti-

cides; Journal of Royal Agricultural Society; Experiment Station Record; Reports and Bulletins of Experiment Stations.

FRESHMAN YEAR.

FIRST HALF YEAR. *Agriculture*—Farm Management; Farm Accounts, one hour. *Veterinary Science*—Comparative Anatomy of Domestic Animals, two hours. *Mathematics*—Geometry and Algebra, five hours. *Chemistry*—Lectures, four hours. *English*—Four hours. *Hygiene*—Lectures, one hour.

SECOND HALF YEAR. *Agriculture*—Farm Implements and Hand Tools, one hour. *Veterinary Science*—Comparative Physiology of Domestic Animals, three hours. *Mathematics*—Algebra and Trigonometry, five hours. *Chemistry*—Laboratory, four hours. *English*—Four hours. *Hygiene*—One hour.

SOPHOMORE YEAR.

FIRST HALF YEAR. *Agriculture*—Soils, Tillage and Drainage, Fertilizers, five hours. *Botany*—three hours. *Veterinary Science*—Histology, two hours. *English*—Three hours. *Electives*—Mathematics, French or German.

SECOND HALF YEAR. *Agriculture*—Forage and Root Crops; Grains and Grasses; Special Crops, four hours. *Botany*—Two hours. *Entomology*—Two hours. *Road Making*, two hours. *English*, three hours. *Electives*, Mathematics, French or German.

JUNIOR YEAR.

FIRST HALF YEAR. *Agriculture*—Stock Feeding, Dairying, four hours. *Horticulture*, three hours. *Biology*, three hours. *English*, three hours. *Electives*—Physics, Mechanical Engineering, Shop Work, Logic, History, French or German.

SECOND HALF YEAR. *Agriculture*—Breeds of Live Stock; Stock Breeding, four hours. *Horticulture*, three hours. *Biology*, two hours. *English*, three hours. *Electives*—Mechanical Engineering, Shop Work, History, Political Economy, French or German.

F. B. Cahill,	<i>Marshfield.</i>
W. K. Davis,	<i>Wait's River.</i>
Francis Day,	<i>Sharon.</i>
Herbert Dean,	<i>Walker, Mass.</i>
Fred A. Drew,	<i>South Burlington.</i>
Dean C. Fisher,	<i>Cabot.</i>
A. A. Fletcher, Jr.,	<i>Wardsboro.</i>
D. L. Fuller,	<i>Underhill.</i>
E. L. Gardner,	<i>Enosburgh Falls.</i>
Albert Gleason,	<i>Jericho.</i>
O. H. Goodrich,	<i>Underhill.</i>
Edson W. Gordon,	<i>Grand Isle.</i>
T. A. Grimes,	<i>North Orwell.</i>
William E. Heath,	<i>Sharon.</i>
Arthur B. Hough, B. S.,	<i>Lebanon, N. H.</i>
W. A. Landon,	<i>Johnson.</i>
Henry Lang,	<i>Burlington.</i>
Grant C. Lathe,	<i>Richmond.</i>
T. H. Leland,	<i>Johnson.</i>
C. H. Livingstone,	<i>South Peacham.</i>
M. A. Maynard,	<i>Burlington.</i>
H. Q. McGowan,	<i>Grand Isle.</i>
E. A. Mitchell,	<i>Barton Landing.</i>
Carroll R. Prime,	<i>Brandon.</i>
M. W. Reynolds,	<i>Fairfax.</i>
F. E. Richter,	<i>Adams.</i>
D. M. Robinson,	<i>Westford.</i>
W. Robinson,	<i>South Hero.</i>
W. W. Robinson,	<i>South Peacham.</i>
George Rowe,	<i>West Barnet.</i>
P. S. Sharow,	<i>East Highgate.</i>
C. C. Shaugrane,	<i>Montgomery.</i>

Howard Slack,	<i>Norwich.</i>
C. G. Stevens,	<i>Walden.</i>
A. A. Storrs,	<i>East Bethel.</i>
Duncan Stuart,	<i>Burlington.</i>
G. H. Terrill,	<i>Morrisville.</i>
L. B. Thurston,	<i>Eagle Mills, N. Y.</i>
J. G. Turnbull,	<i>Barton Landing.</i>
C. H. Waterhouse,	<i>Windsor.</i>
L. H. Waters,	<i>Winooski.</i>
H. H. Whitney,	<i>Guildhall.</i>
P. B. Wolcott,	<i>Shoreham.</i>

MILITARY INSTRUCTION.

In accordance with an act of Congress, an officer of the United States Army is stationed at the University as Professor of Military Science and Tactics, and all male students, except those in the Medical Department, are required to take part in military drill and instruction three hours each week. A neat, inexpensive uniform is worn during drill.

The drills take place twice a week and are so conducted as to afford healthful exercise, which, while not severe, tends to develop an erect figure and carriage. The military discipline, though enforced only during the hours of drill, is designed to develop soldierly honor, and those ideas of promptness, order and obedience to lawful authority, which are applicable to all callings in life.

The theoretical instruction is given to each class once a week by recitations and lectures. It embraces besides the Drill Regulations of the U. S. Army, the elementary principles which govern the art of war, such as officers of a volunteer army should be conversant with upon first being called into the field.

Upon the graduation of each class, the names of those students who have shown especial aptitude for military service are reported to the United States War Department and to the Adjutant General of the State, and the names of the three most distinguished students in Military Science and Tactics are inserted in the United States Register.

MILITARY ORGANIZATION.

The students are organized into a regiment of infantry, consisting of two battalions, five companies, and a band, officered by the Senior Class, the sergeants being taken from the Junior Class, and the corporals from the Sophomore Class.

The following is the Roster of officers and non-commissioned officers for the present year :

FIELD.

Lieut.-Colonel, E. J. Armstrong.
Majors, F. M. Knights, F. S. Wright.

STAFF.

Adjutant, W. C. Hopkins.
Quartermaster, E. G. Spaulding.
Inspector of Rifle Practice, W. Stuart.
Signal Officer, F. L. Dunham.

NON-COMMISSIONED STAFF.

Sergeant-Major, E. G. Randall.
Q. M. Sergeant, C. W. Doten.

CAPTAINS.

A. C. Crombie,
E. M. Stevens,
G. K. Sprague,

C. B. Dunn,
S. Freeman,
W. H. Englesby.

LIEUTENANTS.

M. D. Chittenden,
J. F. Young,
J. D. Batchelder,
F. N. Guild,
A. B. Tracy,
E. B. Jones,
F. G. Bottum,
B. D. Longe,
C. H. French,

E. D. Strickland,
W. H. Cambridge,
R. D. Hoyt,
R. K. Severson,
C. E. Stevens,
A. K. Bottsford,
J. E. Armstrong,
J. W. Avery,
E. G. Blessing.

FIRST SERGEANTS.

J. H. Blodgett,
M. S. Allen,
G. G. Hinsdale,

P. J. Ross,
H. C. Shurtleff.

SERGEANTS.

R. N. Woodward,
Hugh Davis,
N. B. Webber,
L. M. Saunders,

M. M. Hutchinson,
C. G. Andrews,
W. F. Daggett.

CORPORALS.

T. H. Canfield,
N. D. Blake,
J. H. Buffum,
W. P. Marsh,
C. C. Taylor,
H. D. Giddings,

A. B. Cutter,
Robert Hazen,
J. T. Stearns,
George Miller,
C. W. Fisher,
J. E. Colburn.

RULES AND REGULATIONS.

ABSENCES.

1. Students rooming in the College Dormitories are required to attend Prayers in the Chapel every week-day morning; all others are required to attend whenever they have recitations or other college exercises at the first hour.

2. Students should be in their seats when the bell ceases to toll. Tardiness at Prayers will be treated as absence.

3. Any excess above eighteen absences from Chapel in the half-year will subject the student to censure.

4. Students whose absences exceed 10 per cent of the required exercises in any study in the half-year may, in addition to the regular class examinations, have further tests assigned them, or additional work, at the discretion of the Instructor. Failures in Recitation shall be counted as half absences under this rule.

5. No Instructor is authorized to grant or excuse absences; but failures may be made up and canceled when the Instructor is satisfied as to the cause of failure.

6. After a Recess, work will be resumed with the first afternoon exercises.

7. For one day before and after a Recess each absence shall count as two.

8. The absences of students shall be in charge of a Committee of the Faculty.

9. Excuses for absence must be put in writing, dated and signed, and deposited with the Secretary of the Absence Committee.

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> the Athletic Committee
team.

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A record is kept of the
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Students who fail in the regular examination in any subject will be allowed to take a re-examination in that subject one year from the time of failure.

Students who fail in the re-examination will cease thereupon to be candidates for a degree.

In case of Seniors, all delinquencies up to the close of Junior year, must be made up by the end of the first half of Senior year. Those who fail to make up their delinquencies by that time will cease thereupon to be candidates for a degree.

RELIGIOUS SERVICES.

The institution, while not connected with any particular denominational body, and having members of many communions in its board of instruction, aims to impress religious truths and obligations upon all students. A responsive religious service is held every morning in the College Chapel, which the students are required to attend.

A flourishing Young Men's Christian Association of students is maintained, and is in close union both in sympathy and co-operative work with the Young Men's Christian Association of the city. The numerous churches of the place give to the students hospitable welcome to their services and activities. A voluntary Bible class of students is conducted by the President on Sunday afternoons in the College building.

HONOR EXAMINATIONS.

FOR SENIORS.

For the benefit of Students who wish their names to appear on the Honor List [see below] at graduation in recognition of extra work done by them in some special subject or subjects, special Honor Examinations will be held shortly before Commencement in the following subjects: Greek, Latin, French, German, English, History, Philosophy, Political Science, Mathematics, Biology, Chemistry.

It is required that any student who desires to present himself for this examination shall make written application to the Faculty not later than November 1st. A candidate before presenting himself for examination must have taken all the regular courses offered in the subject in which he is to be examined. He must further have passed the Sophomore Honor Examination [see below] in that subject, if such examination shall have been held, unless specially excused. A candidate must also show *general* good standing in all his work.

FOR SOPHOMORES.

Sophomores who wish their names to appear on the Honor List at Commencement will present themselves for the special Honor Examinations held shortly before the close of the academic year in the following subjects: Greek, Latin, French, German, and Mathematics.

It is required that any student who desires to present himself for this examination shall make written application to the Faculty not later than November 1st. A candidate before presenting himself for examination must have taken all the regular courses offered in the subject in which he is to be examined, unless specially excused, and he must have attained a high rank in those courses. This examination shall be open also to Juniors.

The amount and nature of the extra work specially covered by any Honor Examination shall be determined by the instructor who has it in charge. It is required that the student attain a high standard of excellence at the examination.

In place of and as equivalent to an Honor Examination the instructor may, if he pleases, accept a thesis from a student upon some subject which shall have been assigned.

HONOR LIST.

There shall be published on the morning of Commencement Day in each year an Honor List containing (1st) the names of students

who attain grade A in three-fourths* of their work throughout the college course and do not fall below grade B in anything; and (2nd) the names of students who pass the special Senior Honor Examination offered in any subject. Further, in case a student shall attain grade A in three-fourths of his work and shall not fall below grade B in anything, and in addition shall pass the special Senior Honor Examination offered in any subject, he may be awarded *Double Honors*.

The Honor List shall contain also the names of students who pass the special Sophomore Honor Examination offered in any subject. It shall contain further the names of all from the several classes to whom prizes have been awarded during the year, and the names of those appointed to speak at the Prize Debate and on Commencement Day. To this list may be added the names of those who, for these occasions, have presented essays of unusual merit, but who for any reason have not been appointed to deliver them in public.

The Honor Lists will be published on the bulletin board, in the Billings Library, and in the annual catalogue, and copies will be printed for sale.

DEGREES.

For the degrees of Bachelor of Arts and Bachelor of Philosophy see page 25.

DEGREES OF

BACHELOR OF SCIENCE, CIVIL ENGINEER,

ELECTRICAL ENGINEER AND MECHANICAL ENGINEER.

The Degree of Bachelor of Science in *Civil Engineering*, or in *Electrical Engineering*, or *Mechanical Engineering*, is conferred upon students in the Engineering Department who shall complete the courses of study corresponding respectively to these titles.

The Degree of Bachelor of Science in *Chemistry* is conferred upon the completion of the work required by the Department of Chemistry.

* The reckoning shall be made on the basis of the rank report for each half-year.

UNIVERSITY OF VERMONT.

The Degree of Civil Engineer may be conferred upon Bachelors of Science of this University, who have taken the Bachelor's degree work in Civil Engineering, if they furnish satisfactory evidence that they have pursued further technical studies for at least one year, and in addition have been engaged in professional work in positions of responsibility for another year.

The first of the above requirements may be satisfied by pursuing at the University, under the direction of the Faculty, a prescribed amount of study for a time, not necessarily consecutive, equivalent to a college year. If the candidate does not reside at this University, his course of study must be approved in advance by the Professor of Civil Engineering, and he must prepare a satisfactory thesis on some engineering topic, to be presented together with a detailed account of his professional work, one month at least before the date of the annual Commencement at which he expects to receive his degree.

The condition upon which the Degrees of Electrical Engineer and Mechanical Engineer are conferred upon Bachelors of Science of this University, who have taken these degrees for work done in Electrical Engineering and Mechanical Engineering, are analogous in character to that in amount to those given for the Degree of Civil Engineer.

In the Agricultural Department the degree is Bachelor of Science in *Agriculture*.

THE DEGREE OF MASTER OF ARTS.

1. The degree of Master of Arts may be conferred upon resident graduates of one year's standing of this or any other reputable college, and upon non-resident graduates of two years' standing of this University, who shall pursue a course of liberal study (not professional) subject to the approval of the Faculty.

2. Candidates for the A. M. degree shall be required to present a thesis upon some branch of liberal study pursued since graduation, and to pass an examination before the Faculty.

3. The thesis must be presented at least two months before Commencement, and be approved before the candidate shall be admitted to examination.

4. The thesis must be written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of authors consulted. A copy of the same shall be deposited in the University Library.

5. The examination shall be both written and oral, and copies of examination papers shall be kept on file at the University Library. The examination shall be conducted by a committee of the Faculty, who shall appoint the time and place of examination, decide upon the merits of the candidate, and, if they deem him worthy, recommend him to the Trustees for graduation.

THE DEGREE OF DOCTOR OF PHILOSOPHY.

The degree of Doctor of Philosophy is conferred, not for proficiency in miscellaneous studies, nor for the faithful discharge of prescribed work within a given period; but solely as certification of attested ability for independent investigation.

The object in offering the degree is to encourage original research into some branch of learning and to develop the ability to go to the sources of knowledge in Science, Literature, Art or Philosophy, and to establish upon the authority of the sources some noteworthy truth.

It will be absolutely necessary therefore for the candidate to give evidence of this power by the original treatment of a suitable subject in a written thesis, and by creditably sustaining a critical examination, both written and oral, in one principal and one subsidiary subject.

The degree may be conferred upon resident and non-resident candidates alike, but only after a three years' course of study under competent direction and subject to the approval of the Faculty.

The University offers no regular graduate courses, but members

Each student pays an annual fee of \$2 for supplying the reading room with periodicals.

An ordinary Scholarship cancels the amount of the tuition fee, and a State Scholarship both the tuition and the annual fees. But no student shall have his scholarship credited upon his bills while his college work is in arrears or while any charges stand against him on the treasurer's books.

A fee of \$8 is charged for the Diploma given at graduation, and a fee of \$5 for a certificate of proficiency.

PAYMENT OF BILLS.

Interest at the rate of six per cent will be charged upon all bills from the day on which they are due. No student will be advanced from class to class, or admitted to graduation until all arrearages are settled to the satisfaction of the treasurer.

Payment of the College Bills is required in advance for the first term, and in advance for each subsequent term unless a bond, satisfactory to the Treasurer, in the sum of three hundred dollars, has been lodged with him to secure their payment; in which case the term bill becomes due at the end of the term. Students temporarily absent from the University are charged as if present. Students entering an advanced class are required to pay one-half of the back tuition, unless from another college.

Room rent in the College Dormitories ranges from \$15 to \$30 per year, according to the location of the room and the number of the occupants. This does not include fuel and lights.

The students' rooms are furnished at the expense of the University. Students need to provide only carpets, mattresses, and bed clothing. The beds are furnished with wire mattresses. All rents include care of room by college servants. Fuel and lights are estimated on the supposition that two students occupy one room. Good board with room may be obtained in private families at \$3.50 to \$4.50 a week. Other expenses, for clothing, traveling, books, stationery, society and class taxes, etc., vary with the circumstances and habits

of the student. Those who pursue the Chemical Laboratory Course must pay for all breakage, besides the fee of \$15.50 each half year for chemicals, gas, etc.

The Central Vermont and Wells River railroads carry students for fare at mileage rates.

BOARDING HALL.

There is a Commons Hall on the College grounds at which good table board is furnished to students at cost. The rate of board at present prices of provisions is from \$2.50 to \$3.00 per week.

SCHOLARSHIPS.

Scholarships, affording aid to students of limited means, to the amount of tuition, have been endowed as follows :

The Washburn Scholarships, twelve in number, by Daniel Washburn, M. D., of Stowe, for the benefit of young men studying for the Christian ministry, or, in default of such applicants, of other deserving young men.

The Louisa H. Howard Scholarships, seven in number, by Miss Louisa H. Howard, of Burlington.

The Sarah B. Jacobs Scholarships, seven in number, by Mrs. Sarah B. Jacobs, of Boston, for the benefit of graduates of Brigham Academy, at Bakersfield, Vt.

The Bertman Scholarship, by John Bertman, Esq., of Salem, Mass.

The Green Scholarship, by Horace Green, LL. D., of New York City.

The Fairbanks Scholarship, by the Hon. Erastus Fairbanks, of St. Johnsbury.

The Parker Scholarship, by the Rev. Charles C. Parker, D. D., '41, in memory of himself and son, Charles Edmund Parker, '67.

The Westford Scholarship, by the Hon. L. P. Poland, LL. D., of St. Johnsbury.

The Converse Scholarship, by John H. Converse, '61, of Philadelphia.

The Edwin Wright Marsh Scholarship, endowed by Charles P. Marsh, Esq., '39, of Woodstock, in memory of his son, of the class of 1872, for the benefit, in the first instance, of students from the town of Weathersfield, Vt.

The Charles Munson Marsh Scholarship, by the same, available first for students from Woodstock, if such apply.

The Charles P. Marsh Scholarships, five in number, available, first, for needy and worthy young men or women from the County of Windsor.

The Lizzie S. Converse Scholarship, by bequest of Miss Lizzie S. Converse of Burlington, for poor and deserving students in the Classical Department.

The Rich Scholarship, by Charles W. Rich, Esq., '36, of St. Albans.

The Rich Scholarship, by the same, for the benefit, first, of students from the town of Swanton, Vt.

The Isle LaMotte Scholarship, by N. S. Hill, Esq., of Burlington, for the benefit of students from Isle LaMotte, and failing such, from Craftsbury.

The Shaw Scholarship, by Hon. William G. Shaw, of Burlington, of the class of '49.

The class of '61 Scholarship, endowed, and made available in 1891.

Several other classes are undertaking to endow scholarships, but none of them are as yet available.

Appointments are made to these scholarships by the Faculty from term to term, and are conditioned on the attainment of a certain grade of scholarship and on exemplary conduct.

The endowment of additional scholarships would enable the University to extend its benefits to those who could not otherwise afford

the expense of a four years' maintenance in College. The minimum endowment is one thousand dollars. The annual payment of \$60 relieves one student from the payment of tuition alone ; of \$80, from the payment of tuition and annual fees.

STATE SCHOLARSHIPS.

Thirty State Scholarships, covering tuition and incidental expenses in the Classical or Scientific Departments are now available. Nomination to these scholarships rests with the Senators from the several counties, to whom application should be made.

THE JEDEVINE FUND,

now available in part, is loaned in small sums to "poor and deserving students" in the Classical and Scientific Departments, who are residents of Vermont. The loans must be well secured, and must be repaid within a specified time after the student leaves college. Applications may be made to the Treasurer of the University.

PRIZES.

FRESHMAN PRIZES.

Three prizes of \$25 each will be awarded to candidates for admission to the Freshman Class who shall pass the best entrance examinations in Greek, in Latin, and in Mathematics.

PRIZE FOR PROGRESS.

A prize of \$25 will be awarded to the student who, in the judgment of the Faculty, is entitled to the greatest credit for effort and attainment in his studies during his College Course.

PRIZES IN ELOCUTION.

By gift from Dr. William E. Forest, '74, New York City, prizes of \$25, \$15 and \$10, are offered to members of the Sophomore and Freshman classes for the best declamation of passages in oratorical prose.

PRIZE DEBATE.

Mr. John H. Converse, '61, has established the "Converse Debate Prizes" of \$50 as first prize and \$25 as second prize, to be awarded, in accordance with regulations to be made by the Faculty, to contestants in a public debate held in connection with the exercises of Commencement.

THE READING PRIZE FOR YOUNG WOMEN.

Prizes of \$25, \$15, and \$10 are offered by Mrs. Julia H. Spear, of Burlington, for excellence in reading by young women of the University.

THE PHELPS PRIZE.

A prize of \$50 in gold, endowed in memory of the late Edward Hiaght Phelps, C. E., class of 1874, will be awarded by the Faculty each year at Commencement to a graduate of that year in Civil Engineering who shall have exhibited conspicuous merit in professional studies, and high and noble traits of personal character. A special certificate will accompany the prize, indicating the conditions upon which it has been awarded. In case no award shall be made in any year, the same amount of money will be expended in the purchase of books on the subject of Civil Engineering for the use of the department.

THESIS PRIZE.

A prize of \$25 dollars is awarded to the member of the Senior class in the Civil Engineering Department presenting the best thesis.

HOWARD PRIZES.

Mrs. Hannah T. Howard, of Burlington, left by will \$1,200, the income of which will be awarded in prizes; the conditions to be announced hereafter.

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versity have free use of the Library for consultation, and, on special permission from the President or Librarian, are allowed to draw books. Students have also the use of the Fletcher Free Library, a collection of over 20,000 volumes for loan and reference, which is open daily.

THE MUSEUM.

The Museum building contains valuable collections which illustrate all departments of Natural History. There are several thousand specimens of American and European minerals, some of them being exceptionally fine. Nearly all the species mentioned in the ordinary manuals are well represented. Especial attention is called to a very fine series of the Sulphur and associated minerals found in Sicily, which was given by the Hon. G. P. Marsh, as were also a considerable number of other foreign minerals, rocks and fossils. A fine series of the rocks of Europe and a very complete set of the lavas from the neighborhood of Vesuvius as well as some very rare and beautiful Hartz minerals are the gift of Rev. Edward Hungerford. The rocks and minerals of Vermont are also fully illustrated.

The large collection of American and foreign fossils well represents the main sub-divisions of Geological time, and most of the minor divisions and groups are fairly indicated by characteristic fossils. A not large but very good collection of birds, some of them being of very rare forms and in the best plumage, includes, besides nearly all the species found in Vermont, many North American and a few foreign species. Most of the mammals found wild in the State have been collected and well mounted for the museum and the same is true of reptiles and fishes. Large alcoholic collections of these latter groups furnish material for investigation. There are also numerous skeletons, crania, nests and eggs of birds.

The Invertebrate collections contain sponges, corals, crinoids, echinoids, etc., dry and alcoholic, together with a considerable series

ALUMNI ASSOCIATIONS.

Local Alumni Associations for cherishing the college spirit, and for promoting the interests of the University in their several localities, have been formed as follows :

THE NEW YORK ASSOCIATION, for New York City and the vicinity: President, John H. Converse; Secretary and Treasurer, W. A. Mitchell; Executive Committee, Robert D. Benedict, W. E. Forest, C. W. Baker, C. W. Buckham.

THE NEW ENGLAND ASSOCIATION, meeting in Boston: President, Edmund W. Bennett; Vice-Presidents, H. O. Houghton, N. G. Clark, G. G. Benedict, F. W. Page, Charles A. Catlin; Secretary, M. E. Shedd; Executive Committee, George N. Carpenter, D. R. Dewey, C. P. Thayer, T. P. W. Rogers, W. B. Gates.

It is understood that an Association is to be formed in Chicago at an early day.

PROFESSORS OF SPECIAL SUBJECTS.

STEPHEN MARTINDALE ROBERTS, A. M., M. D.,
Professor of Diseases of Children.

WILDER L. BURNAP, A. M.,
Professor of Medical Jurisprudence.

J. H. WOODWARD, B. S., M. D.,
Professor of Diseases of the Eye, Ear and Throat;
Ophthalmologist to the Mary Fletcher Hospital.

FREDERICK PETERSON, M. D.,
Lecturer on Diseases of the Nervous System.

WILLIAM WOTKYNs SEYMOUR, A. B., M. D.,
Professor of Surgical Diseases of Women.

CONDUCT W. CUTLER, M. S., M. D.,
Professor of Dermatology.

J. H. LINSLEY, M. D.,
Professor of Pathology and Bacteriology.

J. H. HAMILTON, M. D.,
Professor of Sanitary Science and Hygiene.

JAMES R. HAYDEN, M. D.,
Professor of Genito-Urinary and Venereal Diseases; Chief of Venereal Clinic,
College of Physicians and Surgeons (Columbia College), Visiting Surgeon to
City Hospital, Blackwell's Island.

P. M. WISE, M. D.,
Supt. of St. Lawrence Insane Asylum; Professor of Diseases of the Mind.

ANNUAL ANNOUNCEMENT, 1894.

The Medical Department of the University of Vermont was chartered by the State in 1828. It was reorganized in 1854. The institution is consequently one of the oldest Medical Colleges in the United States.

The forty-first annual course of lectures will begin Thursday, January 25th, 1894, and continue six months, ending July 16th. This extension of the term will increase the scope of the instruction and afford the student more time to digest the information imparted to him. The corps of instructors has been increased by the election of adjunct Professors to several chairs. These adjuncts will instruct the class by lectures or recitations under the direction of the chief of the department, and such instruction will be a compulsory part of the curriculum. The executive faculty remains unchanged.

There will be only *one* course of lectures each year in this department, the *Preliminary Term having been abolished*.

The curriculum comprises instruction in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice, Obstetrics, Surgery, Diseases of Children, Ophthalmology and Otology, Pathology and Bacteriology, Neurology, Diseases of the Mind, Hygiene, Medical Jurisprudence, Venereal Diseases, Dermatology, Laryngology and Gynæcology. This instruction is given by scholastic and clinical lectures and by demonstrations. Laboratory instruction in Urinary Analysis, Histology, Pathology and Bacteriology and practical work in Physical Diagnosis and Demonstrative Obstetrics are now compulsory ; and each candidate for the degree of Doctor of Medicine must have taken each of these branches *once* during his attendance at this college.

All private courses by the professors are abolished.

REQUIREMENTS FOR ENTRANCE.

A candidate who has been twice rejected on final examination at this College shall not be admitted to matriculation.

All students who have matriculated in this Department of the University *prior to July 8, 1891*, will be admitted to the lectures and enrolled as students in regular standing, *without preliminary examination*.

Applicants *who do not belong to this class*, will be required to pass an Entrance Examination in *Arithmetic, Grammar, Geography, Orthography, American History, English Composition and Elementary Physics*, before they may be regularly enrolled as students in good standing in this department. But applicants who may have failed in one or more branches at these examinations, may be enrolled as *conditioned* students; they must make up the deficiency, however, during the first year, before they can be enrolled as students in regular standing.

EXCEPTIONS:—Such entrance examination *will not be required* of applicants of the following classes:

1. Those who declare themselves *in writing* not to be candidates for the Degree in Medicine from this College.
2. Those who have received the Degree of A. B., A. M., B. S., M. S., Ph. B., or Ph. D., from a College or University which maintains a satisfactory Academic standard.
3. Those who have successfully completed a full year's course of study in any College or University which maintains a satisfactory Academic standard.
4. Those who have passed satisfactorily the entrance examination to the Literary or Scientific Department of the University of Vermont, or to any other College or University which maintains a satisfactory Academic standard.
5. Those who have passed the entrance examination to a Medical

School having requirements for entrance equivalent to those adopted by this Faculty.

6. Those who have received a "Medical Student's Certificate" from the Regents of the State of New York, or from any similarly constituted authority in other States.

7. Those who have received a Diploma or a Certificate for any ten studies from the Regents of the State of New York, or from any similarly constituted authority in other States.

8. Those who have satisfactorily completed a three years' course in a High School, Normal School, or Academy.

REQUIREMENTS FOR GRADUATION.

Students who have matriculated in this College prior to July 1, 1890, will be subject to the regulations and requirements for graduation as printed in the Announcement for 1890.

THREE FULL COURSES OF LECTURES, OF AT LEAST TWENTY WEEKS EACH, WILL BE ABSOLUTELY REQUIRED OF STUDENTS WHO DO NOT COME UNDER THE ABOVE REGULATION, AND NO PERIOD OF PRACTICE WILL BE TAKEN AS AN EQUIVALENT OF ONE COURSE.

No candidate shall be admitted to an examination until all fees due the College from such candidate shall have been paid.

Candidates for the Degree of Doctor of Medicine, before presenting themselves for examination, must have attended at least three full courses of lectures of twenty weeks' duration each, the last at this College. The candidate must have studied medicine three years, must have attained the age of twenty-one years, and must present full certificates of the time of his study, of age, and of moral character. Each candidate is required to deposit his examination fee with the Secretary of the Faculty one month before the close of the ses-

sion, and to furnish evidence of having pursued the study of Practical Anatomy under the direction of a demonstrator.

He must have taken at least one course of laboratory instruction in Urinary Analysis, in Histology, and in Pathology and Bacteriology and one course of practical work in Physical Diagnosis and in Demonstrative Obstetrics at this college before he may become a candidate for graduation.

He must also pass a satisfactory written or oral examination before the Medical Faculty and Board of Medical Examiners appointed by the State Medical Society. No thesis is required.

The tickets and Diplomas of Eclectic and Homœopathic, or Botanic Colleges, or of Colleges devoted to any special system of medicine, are considered irregular, and will not be recognized under any circumstances. Certificates from preceptors who practice any particular system of medicine, or who advertise or violate in any way the Code of Ethics adopted by the profession, will not be accepted under any circumstances, even if the preceptors be regular graduates in medicine.

Graduates of other regular Medical Colleges who desire a degree from this University, must take one laboratory course in Urinary Analysis, in Histology, and in Pathology and Bacteriology, one course of practical work in Physical Diagnosis and in Demonstrative Obstetrics at this College, and they must furnish evidence of having pursued the study of Practical Anatomy under the direction of a demonstrator.

They must pass a satisfactory examination in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice in Medicine, Surgery and Obstetrics. No thesis is required.

No credit in time or in lectures shall be given any student, by virtue of his Degree in Pharmacy, Dentistry, or Veterinary Surgery.

Degrees *in absentia* are not conferred by this University under any circumstances whatever.

SPECIAL EXAMINATIONS IN THE ELEMENTARY DEPARTMENTS.

Students who have attended two full courses of lectures *in all departments taught in this College* may be examined upon Anatomy, Physiology, Chemistry, and Materia Medica, at the end of the second course, and if successful in these examinations they will be examined at the end of the third course upon Practice of Medicine, Surgery and Obstetrics only. Candidates for the primary examinations will be required to pay three-fifths of the examination fee. The primary examinations are held at the close of the regular session only. The certificate and the remainder of the examination fee are to be handed to the Secretary at the regular time before the examination. Certificates of having passed in any branch or branches in other colleges are not accepted by this College.

FACULTY PRIZES.

The Faculty have established two Prizes for general proficiency in examination—a First Prize of Fifty Dollars, and a Second Prize of Twenty-five Dollars. These prizes will be awarded as follows :

The ten students who pass the best examinations for their degree will be allowed to compete in a written examination for the prizes; of this number, the five who rank highest shall be called Honor Men, and will each receive a *Special Diploma of Honor*, and of these last, those who are deemed worthy shall receive respectively the first and second prizes.

The Honor Men of 1898 were: J. M. Page, G. G. Marshall, J. M. Hamilton, W. A. Millet, E. M. Alger. The First Prize was awarded to J. M. Hamilton; the Second Prize to G. G. Marshall.

FULL FEES OF THE COLLEGE.

MATRICULATION FEE, payable each term.....	\$ 5 00
FULL COURSE OF LECTURES, 1st year.....	80 00
FULL COURSE OF LECTURES, 2nd year.....	80 00

FULL COURSE OF LECTURES, 3rd year and each subsequent year	\$60 00
SINGLE TICKETS.....	15 00
EXAMINATION FEE, payable once, and not returnable.....	25 00
EXAMINATION FEE, Primary Branches.....	15 00
EXAMINATION FEE, Final Branches.....	10 00
DEMONSTRATOR'S FEE, required of every new matriculant, including material.....	10 00

Candidates for graduation must have taken each of the following practical courses once sometime during their attendance at this College :

HISTOLOGY.....	\$10 00
PATHOLOGY.....	10 00
URINALYSIS.....	10 00
PHYSICAL DIAGNOSIS.....	10 00
DEMONSTRATIVE OBSTETRICS.....	10 00

Students who have attended two full courses of lectures in some other regular school or schools are admitted on paying the matriculation fee and \$60.00.

Students who have already attended one full course in this College and one full course in some other regular Medical School, are admitted on paying the matriculation fee and \$60.

Graduates of other regular American Medical Schools are admitted on payment of the matriculation fee and \$25.

Graduates of this school are admitted without fee.

Theological students are admitted on payment of the matriculation fee only, unless intending to graduate in medicine, in which case they will be required to conform to the above conditions.

All fees must be paid to the Secretary, and are payable in advance.

For further particulars address the Secretary,

DR. B. J. ANDREWS,
Mary Fletcher Hospital,
BURLINGTON, VT.

STUDENTS OF 1893.

J. T. Adams, N. H.	H. A. Cheney, N. H.
E. M. Alger, Vt.	G. T. Church, N. Y.
L. H. Allen, Vt.	F. L. Cloric, Mass.
F. C. Angell, Vt.	O. F. Clough, N. Y.
E. G. Archambault, Vt.	E. O. Cobb, Me.
E. W. Arner, Pa.	J. E. Cochrane, N. Y.
Edw. Atkinson, N. B.	E. R. Cooke, O.
A. J. Baker, Pa.	L. J. Cooke, O.
H. E. Ballard, Vt.	I. J. Cook, N. Y.
W. S. Bates, Mass.	J. W. Courtney, Vt.
H. P. Beirne, N. H.	C. A. Cramton, Vt.
G. W. Bell, Ark.	E. M. Crane, Vt.
J. M. Bemis, Mass.	W. F. Cummings, Vt.
E. W. Bennett, N. Y.	C. P. Curley, Vt.
G. C. Berkley, Vt.	F. C. Demorest, N. Y.
L. C. Bickford, Me.	C. E. Davenport, N. Y.
A. N. Bigelow, Vt.	E. B. Davis, Vt.
H. L. Bingham, Vt.	J. M. Dexter, Jr., N. Y.
L. H. Blanchard, Me.	J. R. Disbrow, N. B.
S. D. Bowker, Mass.	J. H. Dixon, Mass.
J. B. Booth, N. Y.	C. B. Doane, Vt.
E. V. Bray, N. Y.	J. A. Dowal, —.
B. J. Brown, Jr., Vt.	C. J. Downey, Mass.
J. E. Burby, N. Y.	J. A. Drew, Vt.
E. A. Burdick, Vt.	H. W. Eggleston, N. Y.
M. O. Cahn, N. Y.	H. A. Elliott, N. H.
D. H. Calder, Utah.	G. A. Ellinwood, Me.
H. C. Call, Mass.	E. E. Ellis, Vt.
S. S. Carruth, Mass.	J. W. Estabrook, Vt.
H. E. Chase, Me.	J. D. Finnegan, N. Y.

H. A. Fiske, Vt.	W. S. Jernegan, Mass.
W. H. Fitzgerald, Conn.	N. M. Kalousdian, Armenia.
W. F. Fitzpatrick, Vt.	C. D. Kelley, N. Y.
P. C. Fletcher, N. Y.	J. S. King, N. Y.
I. N. Fowler, Mass.	L. I. Kinsella, Vt.
G. T. Gale, Vt.	H. F. Kinsman, Mass.
H. M. Gardner, Mass.	W. L. M. Knowles, Vt.
T. F. Gartland, Vt.	O. E. Krogstad, Minn.
J. W. Gondy, Me.	A. J. Lance, Vt.
F. L. Grahlfs, N. Y.	E. S. Lane, Vt.
F. S. Grey, N. Y.	W. N. Lawrence, Vt.
F. S. Griffins, Mass.	M. B. Lewis, N. S.
W. W. Griffiths, Vt.	G. W. Libby, N. Y.
M. K. Gudemian, Armenia.	W. A. Lyman, Vt.
J. M. Hamilton, Vt.	J. T. Lyston, Vt.
S. W. Hammond, Vt.	J. A. Mack, Mass.
F. E. Harlow, Vt.	G. G. Marshall, Vt.
F. W. Hewes, Vt.	A. C. Mathews, N. Y.
T. C. Hill, Vt.	S. D. McAllister, Vt.
E. F. Hitchcock, N. Y.	C. F. McCann, M. D., N. Y.
C. L. Hodgkins, Mass.	M. F. McGuire, Vt.
L. C. Holcombe, Vt.	W. F. McKenzie, Vt.
G. W. Holden, Mass.	J. B. McKenzie, Vt.
K. W. Holmes, Mass.	P. H. McMahan, Vt.
E. J. Horan, Mass.	J. W. McQuaig, Vt.
E. E. Houghton, N. H.	W. A. Millet, Can.
C. A. Howe, Vt.	H. M. Mooney, Vt.
I. F. Huebner, Vt.	J. P. Moore, Mass.
W. B. Hyde, Vt.	J. C. Morgan, Vt.
H. N. Jackson, Ont.	J. W. Muller, N. J.
J. A. Jennings, Utah.	D. Murphey, A. B., N. Y.

J. H. Naylor, N. Y.
G. L. Noyes, Mass.
J. P. O'Brian, N. Y.
J. J. O'Meara, N. Y.
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Paul Plummer, Mass.
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G. C. Pratt, Vt.
R. G. Prentiss, Vt.
W. L. Pressey, Me.
T. F. Rearden, Mass.
W. D. Reed, Mass.
A. L. Reve, N. Y.
D. G. Reilly, Mass.
E. Remick, N. H.
Thomas Rice, Me.
E. D. Richmond, Mass.
C. H. Robbins, Mass.
Geo. Roberts, Vt.
S. H. Rogers, Vt.
E. L. Rose, N. Y.
E. F. Ross, Vt.
H. E. Rowse, Conn.
L. A. Russlow, Vt.
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J. P. Schneider, Mass.
W. H. Schwartz, N. Y.
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T. B. Shaw, N. Y.
E. F. Shea, R. I.
P. J. Shea, Conn.
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M. L. Smail, Mass.
A. A. Smith, Me.
P. C. Snowden, N. Y.
Sam Sparhawk, M. D., Vt.
E. G. Sprague, Vt.
C. L. Starkweather, Vt.
A. E. St. Clair, Me.
A. C. Stewart, Vt.
F. C. Stewart, L. I.
H. L. Stickney, Vt.
L. C. Stillings, N. H.
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W. H. Sturgis, Mass.
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W. K. Taft, Vt.
W. W. Townshend, N. Y.
B. T. Tushjian, Armenia.
M. C. Twitchell, Can.
J. A. Tyler, Me.
H. R. Varney, N. Y.
F. Vasquez, Colon, W. I.
L. G. Verrill, Vt.
N. Wallic, Australia.

J. B. Weintraub, Austria.
 T. H. Wheatly, Vt.
 E. A. Widber, Me.

R. G. Wisell, Vt.
 C. W. Worthen, Vt.
 O. C. Young, N. H.

DEGREES CONFERRED IN 1893.

DEGREES IN COURSE.

DOCTOR OF MEDICINE.

Ellice Murdoch Alger, A. B.,
 Edward Atkinson,
 Harry Emory Ballard,
 Henry Peter Beirne,
 John Merrick Bemis,
 Byron Judson Brown, Jr.,
 Sidney Stetson Carruth,
 John Elwyn Cochrane,
 Irving Jabez Cook,
 Charles Augustus Cramton,
 William Francis Cummings,
 Clarence Emmet Davenport,
 Henry Augustus Elliot,
 John Darius Finnegan,
 Frank C. Fletcher,
 Isaac Newton Fowler,
 Thomas Francis Gartland,
 James Madison Hamilton, A. B.,
 Horatio Nelson Jackson,
 James Samuel King,
 Olaf Emil Krogstad,
 Arthur Joseph Lance,
 Edward Stevens Lane,
 George Guerin Marshall.

Charles Freemont McCann, M. D.,
 Wilfred Antonio Millet, A. B.,
 John Marshall Page,
 Rupert William Parker,
 Hugh Ferguson Parish,
 Thomas Norman Pearson,
 Frank Cooley Phelps,
 Thomas Rice,
 Frank Abiram Rich, V. S.,
 Samuel Hoston Rogers,
 Martin Lawson Smail,
 Arthur Albert Smith,
 Percy Clinton Snowden,
 Lee Chamberlain Stillings,
 Sam Sparhawk, A. B., M. D.,
 Austin Emery St. Clair,
 William Warren Townsend,
 Marshall Coleman Twitchell,
 John Adam Tyler,
 Henry Rockwell Varney,
 Joachim Bar Weintraub, A. B.,
 Richard Gordon Wisell, A. B.,
 Charles Wesley Worthen.

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Joseph Dana Allen,	Henry Jennings Kilbourn,
Lyman Allen,	Charles Edward Lamb,
Richard Edmund Armstrong,	Harry Albert Noyes,
Gertrude Adelaide Babbit,	Henry Curtis Petty,
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James Dewey Benedict,	Nathaniel Miller Pratt,
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Ira Harwood Ellis,	Henry Augustus Torrey,
Edgar Horace Farr,	Frederic Albert Wheeler.
William Hazen.	

BACHELOR OF PHILOSOPHY.

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William Murray Cromie,	Erasmus Arlington Pond,
Edward Harrington Deavitt,	Ralph Aldace Stewart,
John Albert Goodrich,	Oella Azuba Thompson,
Thomas Chittenden Hill,	Frank Richardson Wells.

BACHELOR OF SCIENCE IN CIVIL ENGINEERING.

Frank Grant Cudworth,	Edmund Curtis Morse,
John Maurice Evans,	Eugene Nelson Sanctuary,
Charles John Fremont Hayford,	Leon Keeler Wiswell.
John Elbridge Miller,	

BACHELOR OF SCIENCE IN CHEMISTRY.

Matthew Adgate,	Frederich Amos Holbrook.
-----------------	--------------------------

BACHELOR OF AGRICULTURE.

Herbert Isaac Collins,	Tenney Hall Wheatley.
------------------------	-----------------------

HONORARY DEGREES.

MASTER OF ARTS.

His Excellency Levi K. Fuller of Brattleboro, Vt.

DOCTOR OF LAWS.

Hon. John W. Rowell of Randolph, Vt.

DOCTOR OF DIVINITY.

Rev. Charles W. Thompson of Westminster, Vt.

Rev. Albert W. Clark of Prague, Austria.

HONOR LIST, 1892-3.

GENERAL HIGH STANDING.

Class of 1893.

Lyman Allen,
George Wyllys Benedict,
William Hazen,
Joseph Dana Allen,
Ira Harwood Ellis,
Harry Albert Noyes.
Ralph Aldace Stewart,
Frederick Albert Wheeler.

SPECIAL HONOR THESES.

Class of 1893.

PHILOSOPHY.

Harry Albert Noyes.

ANTHROPOLOGY.

**Edgar Horace Farr,
Loyal Ethelbert Sherwin.**

GEOLOGY.

Leon Keeler Wiswell.

CHEMISTRY.

Henry Augustus Torrey.

GERMAN LITERATURE.

Joseph Dana Allen,
William Hazen,
Frederick Albert Wheeler.

FRENCH LITERATURE.

Lyman Allen,
Lillian Estelle Corse,
Charles Edward Lamb,
Frances Marcella Pierce.

DOUBLE HONORS.

Lyman Allen,
Joseph Dana Allen,
William Hazen,
Harry Albert Noyes,
Frederic Albert Wheeler.

SPEAKERS AT COMMENCEMENT.

Lyman Allen,
George Wyllys Benedict,
James Dewey Benedict,
Lillian Estelle Corse,
Edward Harrington Deavitt,
William Hazen,
Ralph Aldace Stewart,
Henry Augustus Torrey.

SPECIAL HONOR EXAMINATIONS.

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GREEK.

Bert Hodge Hill,
Annie Laurie Sherburne.

LATIN.

Bert Hodge Hill,
Robert Douglass Hoyt,
Fred Spencer Wright.

MATHEMATICS.

Florence Lucy Burdick,
John Frederick Pratt,
George Hiram Dalrymple,
Harry Clyde Shurtleff,
Hugh Davis.

GERMAN.

Jabez Eldridge Armstrong,
Mary Russell Bates,
Merritt Darrow Chittenden,
Irene Emily Lee,
Grace Agnes Johnson.

FRENCH.

Edward Dinwoodie Strickland,
Florence Lucy Burdick,
Bert Hodge Hill,
Theodore Eli Hopkins,
Annie Laurie Sherburne,
Harry Abel Way,
John Jay Wilson.

PRIZES.

THE EDWARD HAIGHT PHELPS PRIZE IN CIVIL ENGINEERING.

Leon Keeler Wiswell.

THESIS PRIZE IN CIVIL ENGINEERING.

John Maurice Evans.

FOREST PRIZE IN DECLAMATION.

FIRST: Frederick Barnum Deberville.

SECOND: Charles Ethan Allen.

THIRD: Alfred Breen Cutter.

JUNIOR PRIZE FOR PROGRESS.

Clark Cleland Briggs,

Abel Blodgett Tracy.

PRIZE FOR ENTRANCE EXAMINATIONS.

Tracy Elliot Hazen, *Greek*.Henry Wallace Clark, *Latin*.

George Edson Phillip Smith,	} <i>Mathematics</i> .
Mabel Electa Kidder,	

ACKNOWLEDGMENTS.**LIBRARY.**

The Librarian desires to make special acknowledgment of the following gifts :

- American Association for the Advancement of Science, 1 volume.
- American Museum of Natural History, 2 volumes.
- American Pharmaceutical Association, 1 volume.
- T. R. Barnum, 1 volume and 1 pamphlet.
- T. E. Bartlett, 1 volume.
- B. L. Benedict, 1 volume.
- Rev. H. H. Benson, 1 volume.
- Pres. M. H. Buckham, 15 volumes and numerous pamphlets.
- S. T. Byington, 1 volume.
- California State Library, 1 volume.
- Secretary of State of California, 1 volume.
- Canada Geological and Natural History Survey, 1 volume and 1 pamphlet.
- Royal Society of Canada, 1 volume.
- Mrs. G. I. Chace, 1 volume.
- Chicago Department of Public Works, 1 volume.
- Prof. J. K. Chickering, 1 volume.
- University of Chile, 1 volume and several pamphlets.
- N. J. Colman, 1 volume.
- J. H. Converse, 2 volumes.
- Miss Helen P. Converse, 1 volume.
- Cornell University, 1 volume.
- F. M. Corse, 3 volumes.
- Edw. Counsel, 1 volume.
- R. N. Cust, 1 volume and 1 pamphlet.
- Prof. A. L. Daniels, 1 volume.
- Jas. Emerson, 1 volume.
- Episcopal Conference, 1 volume.
- D. F. Estes, 1 pamphlet.

L. T. Farwell, State Superintendent of Schools of Wyoming, 2 volumes.

Georgia State Department of Agriculture, 1 volume.

Glasgow University, 1 volume.

Bishop de Goesbriand, 2 volumes and 2 pamphlets.

Prof. J. E. Goodrich, 9 volumes.

S. A. Green, 1 volume.

M. R. Hamilton, 1 volume.

Hartford Theological Seminary, 1 volume.

R. C. Hawkins, 1 volume and 2 pamphlets.

Prof. H. W. Haynes, 7 volumes.

H. A. Hazen, 1 volume.

Mrs. J. W. Hickok, 29 volumes.

University of Illinois, 1 volume.

Indiana Academy of Science, 1 pamphlet.

L. R. Jones, 4 volumes.

Kansas State Historical Society, 1 pamphlet.

Rev. J. D. Kingsbury, 3 volumes.

Wm. Kingsford, 1 volume.

H. L. Koopman, 1 volume.

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Massachusetts State Library, 1 volume.

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Minnesota Geological Survey, 1 volume.

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Senator J. S. Morrill, 29 volumes and several pamphlets.

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Prof. H. A. P. Torrey, 3 volumes.
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United States Bureau of Education, 3 volumes.
United States Bureau of Ethnology, 1 volume.
United States Army, Surgeon-General's Office, 1 volume.
United States Department of Agriculture, 5 volumes.
United States Department of Interior, 80 volumes.
United States Department of Navy, 1 volume.
United States Department of State, 9 volumes and 1 pamphlet.
United States Department of Treasury, 11 volumes.
United States Department of War, 14 volumes.
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Rev. H. L. Wheeler, 1 photograph.
E. M. Wilbur, 1 volume.
N. H. Vinchell, 1 volume.

Wisconsin State University Agricultural Experiment Station, 1 volume.

National Association of Wool Manufacturers, 1 pamphlet.

Yale University, 2 pamphlets.

Young Men's Era, 1 volume.

AMERICAN SCHOOL OF CLASSICAL STUDIES.

Through the generosity of the following persons, the University has been enabled during the past year to join the league of Colleges and Universities which maintain the *American School of Classical Studies in Athens*, an institution which has as its object the study of Classical Archaeology and the training of Classical Teachers :

John J. Allen, '62.

Horatio Hickok.

G. G. Benedict, '47.

H. O. Houghton, '46.

R. D. Benedict, '48.

D. P. Kingsley, '81.

M. H. Buckham, '51.

*Lawrence Myers, '53.

John H. Converse, '61.

J. E. Riley, '78.

E. N. Foss.

J. R. Wheeler, '80.

Lewis Francis, '56.

Mary C. Wheeler.

H. N. Hibbard, '50.

Norman Williams, '55.

*Deceased.

SUMMARY OF STUDENTS.

SENIORS.

Classical	19,	Chemical	4,
Literary-Scientific	14,	Agricultural	2,
Engineering	6,	Special	1.
Total,			46

JUNIORS.

Classical	21,	Chemical	1,
Literary-Scientific	11,	Agricultural	3,
Engineering	6,	Special	3.
Total,			45

SOPHOMORES.

Classical	23,	Chemical	4,
Literary-Scientific	15,	Agricultural	8,
Engineering	16,	Special	4.
Total,			70

FRESHMEN.

Classical	18,	Chemical	8,
Literary-Scientific	16,	Agricultural	10,
Engineering	17,	Special	4.
Total,			73

Medical Students,	188
Students in the Dairy School,	50
Graduate Student in Civil Engineering,	
<i>John Maurice Evans,</i>	1
	<hr/>
	473

The following names should be omitted:

<i>F. D. Hatch</i> p. 18, <i>A. O. Howe</i> p. 20,	
<i>M. C. Robbins</i> p. 23.	3
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Total number of Students,	470
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Surveying, 40, 54 ; Summer School in, 55.

Students, 15-24 ; Dairy Students, 74 ; Medical Students, 104.

Trustees, Board of, 8-9.

CATALOGUE
OF THE
UNIVERSITY OF VERMONT

AND

STATE AGRICULTURAL COLLEGE

BURLINGTON VERMONT

1894-95

CATALOGUE
OF THE
University of Vermont
AND
STATE AGRICULTURAL COLLEGE

BURLINGTON VERMONT

1894-95

BURLINGTON
FREE PRESS ASSOCIATION
PRINTERS AND BINDERS
1894

1

2

CALENDAR

1894

26 Sept., Wednesday, A. M., Thanksgiving Recess, Christmas Recess,	First half-year began. From Wednesday noon before- Thanksgiving Day through the week. Including Christmas Day and New Year's Day.
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1895

4 Feb., Monday, 14 " Thursday, 27 Mch., Wednesday, to April 2, Tuesday, 10 May, Friday, 13 June, Thursday, 22 " Saturday, 8 P. M., 23 " Sunday, 3 P. M., 23 " " 7.30 P. M., 24 " Monday, 25 " Tuesday, 9 A. M., 25 " " 10 A. M., 25 " " 3 P. M., 25 " " 7.30 P. M., 26 " Wednesday, 27 " Thursday, 9 A. M., } and 2 P. M., }	Mid-year Examinations begin. Second half-year begins. Spring Recess. Prize Reading for Women Students. Final Examinations begin. Prize Debate. Baccalaureate Discourse. Anniversary of Y. M. C. A. Class Day. Meeting of Phi Beta Kappa. Meeting of Alumni Association. Address before Alumni Association. Forest Prize Speaking. Commencement. Entrance Examinations.
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SUMMER VACATION

24 Sept., Tuesday, 9 A. M., { and 2 P. M., }	Entrance Examinations.
25 Sept., Wednesday, 8.15 A. M., 12 Oct., Saturday,	First half-year begins. Freshman Prize Entrance Exami- nations begin.

DEPARTMENT OF MEDICINE

1895

17 Jan., Thursday, 8 July, Monday,	Lectures begin. Exercises of Graduation.
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HISTORY AND CHARTERS

“An Act for the purpose of Founding a University at Burlington” was passed by the Legislature of Vermont, Nov. 2nd, 1791, of which the following are the Preamble and First Section :

“Whereas the education of youth is necessary for the advancement of morality, virtue and happiness, and tends to render a people or State respectable; to promote which, establishments for Seminaries and Colleges have ever been patronized by all good governments ; and whereas several grants of land have already been made by the State, and private liberal donations have been offered, for promoting so needful an establishment within the same, which demand the attention of this Legislature for laying the foundation for an institution so beneficent to society; therefore,

Section I. It is hereby enacted by the General Assembly of the State of Vermont, that there shall be and hereby is a College instituted and established at such place in the township of Burlington in the County of Chittenden as the Corporators hereinafter named shall think most convenient for that purpose, to be known and designated by the style of THE UNIVERSITY OF VERMONT.”

A subsequent Act gave to the Corporation of the University “full power, right, and authority to appropriate to the use and benefit of the said University forever all such lands as have been already granted and reserved by the authority of this State for the use and benefit of a College.”

The Act of Incorporation vested in the Trustees of the University of Vermont full power “to appoint, elect, support and remove from time to time, all such officers and servants as they shall find necessary; to direct the studies of the youth; to establish professorships and professors, and provide for their support ; to make and establish all necessary rules, regulations and by-laws for the orderly government of said University (provided always that the said rules, regulations and by-laws shall not tend to give preference to any religious sect or denomination whatsoever) ; to grant and confer all such degrees, literary titles, honors and distinctions as other Universities,

Colleges and Seminaries have done or may of right do; and to do any other thing which shall be found necessary for the government and welfare of such an institution."

With the consent of the Corporation certain changes were made by the Legislature in respect to the number and the mode of election of the trustees of the University by Acts passed Nov. 2nd, 1810, and October 31st, 1823, but these were, with like consent, repealed by the Act of October 30th, 1838, which revived and confirmed the provisions of the original charter, which charter remains in full force at the present time, with such modifications as the Corporation of the University accepted in 1865, in accordance with the provisions of the charter of The University of Vermont and State Agricultural College.

In 1862, largely through the exertions of Hon. Justin S. Morrill, then Representative and since Senator from Vermont, Congress passed an "Act donating public lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts." Under the provisions of this Act, the Legislature of Vermont chartered in 1862 the Vermont Agricultural College, which, failing to receive the support necessary to put it into operation, was by an Act approved Nov. 6th, 1865, incorporated with the University of Vermont into one institution by the name of "The University of Vermont and State Agricultural College." This corporation is invested with the property, rights, powers and privileges which belonged to both or either of the corporations so combined, and "shall be and remain a body corporate forever, for the purpose of carrying out the objects contemplated in the respective charters" of the two institutions.

The "objects contemplated" in the charter of the Vermont Agricultural College are stated in the exact language of the Act of Congress providing for Colleges of Agriculture and the Mechanic Arts, as follows:

"The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic

UNIVERSITY OF VERMONT

is, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

The objects contemplated in the charter of the University of Vermont are stated in the Preamble and Sections as given above.

The charter of the University of Vermont and State Agricultural College requires that "there shall, at all times, be maintained in the institution hereby created such instruction in the various branches of learning as is contemplated in the several charters of each of the institutions hereby united; and more particularly including a four years' course of studies, similar to such as are generally taught in other colleges and not inferior to that recently taught in said University of Vermont; and in addition to that which is usually taught in other colleges, the instruction in this institution shall include such enlarged facilities, and extended scope and variety in the study of those branches which relate to military tactics, agriculture and the mechanic arts, as shall render the whole instruction in conformity with said Act of Congress, as well as with the several charters aforesaid."

Section II of the Charter provides that, for the purpose of receiving property by gift, grant, bequest or otherwise, and for certain other purposes therein specified, each of the original corporations shall be deemed and treated as having continued in life.

Gifts and bequests may therefore be made to (1) The University of Vermont, (2) The Vermont Agricultural College, (3) The University of Vermont and State Agricultural College.

By the provisions of

"An Act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of an act of Congress, approved July second, eighteen hundred and sixty-two," the institution receives from the United States Treasury an annual appropriation to be applied "only to instruction in Agriculture, the Mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

BOARD OF TRUSTEES

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HON. HOMER NASH HIBBARD, LL. D., *Chicago, Ill.*
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HON. ELIAS LYMAN, A. M., *Burlington.*
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ON THE PART OF THE VERMONT AGRICULTURAL COLLEGE

HON. CROSBY MILLER, <i>Pomfret.</i>	} 1889-95.
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TYLER M. GRAVES, <i>Underhill.</i>	} 1891-97.
HON. CYRUS JENNINGS, <i>Hubbardton.</i>	
WALLACE IRVING ROBINSON, <i>Barton.</i>	
HON. JUSTIN SMITH MORRILL, LL. D., <i>Strafford.</i>	} 1893-99.
GARDNER SMITH FASSETT, <i>Enosburgh.</i>	
CASSIUS PECK, <i>Brookfield.</i>	

HON. GEORGE GRENVILLE BENEDICT, A. M., SECRETARY.
HON. EDWARD HENRY POWELL, *144 College St.*, TREASURER.

UNIVERSITY OF VERMONT

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GEORGE GRENVILLE BENEDICT
HORACE HENRY POWERS
TORREY ENGLESBY WALES**

FINANCE COMMITTEE

**JUSTIN SMITH MORRILL
TORREY ENGLESBY WALES**

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**MATTHEW HENRY BUCKHAM
CROSBY MILLER
EBENEZER J. ORMSBEE
GARDNER S. FASSETT
CASSIUS PECK**

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	RESIDENCE
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WILLIAM C KITCHIN, Ph. D., Professor of Modern Literature	968 S. Union St.
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ALLISON WING SLOCUM, A. M., Professor pro tempore of Physics.	488 Main St.

FACULTY

11

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JOHN BROOKS WHEELER, A. B., M. D., Adjunct Professor of Surgery. Professor of Clinical and Minor Surgery.	210 Pearl St.
CHARLES SMITH BOYNTON, A. M., M. D., Adjunct Professor of Chemistry in the Medical Department.	69 N. Prospect St.
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WILDER LUKE BURNAP, A. M., Professor of Medical Jurisprudence.	151 S. Prospect St.
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JOSEPH HATCH LINSLEY, M. D., Professor of Pathology and Bacteriology.	263 S. Union St.
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FACULTY

13

RESIDENCE

PROFESSOR PERKINS,
Curator of Museum.

205 S. Prospect St.

CHAUNCEY MARSH GOODRICH,
Assistant in the Library.

488 Main St.

GEORGE PETERSON,
HARRY DEWITT GIDDINGS,
Assistants in the Chemical Laboratory.

GEORGE PETERSON,
Leader of the Chapel Choir.

MERRILL MARQUAND HUTCHINSON,
Organist.

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PROFESSOR TORREY
PROFESSOR PERKINS
PROFESSOR GOODRICH

Committee on the Status of Students

PROFESSOR EMERSON
PROFESSOR VOTEY

Military Committee

PRESIDENT BUCKHAM
CAPTAIN TUTHERLY

Absence Committee

PROFESSOR WHEELER
PROFESSOR AYER
MR. STEARNS, Secretary

Athletic Committee

PROFESSOR LOOMIS
PROFESSOR VOTEY
PROFESSOR AYER
PROFESSOR JOHN B. WHEELER
for the Medical Department

S7

Graduate St

NAME

John Findlay Young

SE7

Class

Mafion Shaler Allen
Clayton Gerald Andrews
Florence Lucy Burdick
Wilfred Farr Daggett
Earle Russell Davis
Frederick Barnum Deberville
Fannie Eastman
Bert Hodge Hill
Theodore Eli Hopkins
Merrill Marquand Hutchinson
Grace Agnes Johnson
Eva Addie Jones
William Parmelee Marsh
Wm. James Burdick McFarh
Edward Gove Randall
Frederick Albert Richardson
Philip James Ross
Stewart Leroy Samson
Frederick Thompson Sharp
John Jay Wilson
Charles Gardner Winslow

Literary-

Frances Atkinson
John Henry Blodgett

JUNIORS : CLASS OF 1896

15

NAME	RESIDENCE	ROOM
George Hiram Dalrymple	<i>Vergennes</i>	349 College St.
Carroll Warren Doten	<i>Burlington</i>	51 Loomis St.
Alverne Percy Lowell	<i>Burlington</i>	49 Mansfield Ave.
Alice Annie McDuffee	<i>Thetford</i>	35 Colchester Ave.
Leslie Manchester Saunders	<i>Dickinson C'tr, N. Y.</i>	349 College St.
Harry Clyde Shurtleff	<i>Montpelier</i>	185 St. Paul St.
Harry Abel Way	<i>Burlington</i>	82 King St.
Grace Lovantia Wilcox	<i>W. Concord, N. H.</i>	35 Colchester Ave.

Civil Engineering Students

John Frederick Pratt	<i>Rutland</i>	69 Grant St.
George Zadock Thompson	<i>Woodstock</i>	216 S. Prospect St.
Rollin Nathaniel Woodward	<i>Johnson</i>	1 N. College

Mechanical Engineering Students

Karl Augustus Andr��n	<i>Beverly, Mass.</i>	Middle College
Hugh Davis	<i>Rutland</i>	150 Colchester Ave.

Chemical Student

George Peterson	<i>Burlington</i>	40 S. Willard St.
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Agricultural Students

Leigh Hunt	<i>Brooksville</i>	12 Exp. Station
Charles Edward Stevens	<i>Jonesville</i>	Exp. Farm
Norman Brown Webber	<i>Thetford Centre</i>	12 Exp. Station

Special Students

Leirion Hannah Johnson	<i>Burlington</i>	36 Converse Court
Arthur Pierce Stockwell	<i>Springfield, Mass.</i>	193 S. Union St.

JUNIOR CLASS

Classical Students

Charles Ethan Allen	<i>Rutland</i>	22 Buell St.
George Pomeroy Anderson	<i>St. Albans</i>	5 S. College
George Fletcher Beecher	<i>Essex Centre</i>	19 Orchard Terrace

NAME	RESIDENCE	ROOM
Norris Darling Blake	<i>Eden</i>	23 Buell St.
Grace Mabel Bosworth	<i>Bristol</i>	488 Main St.
Thomas Hawley Canfield, Jr.	<i>Burlington</i>	146 Williams St.
John Edward Colburn	<i>Foster Brook, Pa.</i>	7 S. College
Chauncey Marsh Goodrich	<i>Burlington</i>	488 Main St.
Herbert Bill Hanson	<i>Barre</i>	22 Buell St.
Erwin Maurice Harvey	<i>West Topsham</i>	349 College St.
Robert Hazen	<i>Richmond</i>	4 S. College
Elwin Leroy Ingalls	<i>Montgomery</i>	4 S. College
Annie Bowen Leavens	<i>Passaic, N. J.</i>	88 Buell St.
William Parmelee Marsh	<i>Forest Grove, Or.</i>	7 S. College
Florence Joanna May	<i>St. Johnsbury</i>	2 Colchester Ave.
Elizabeth Norton	<i>Rutland</i>	85 S. Willard St.
Frederick William Roberts	<i>Burlington</i>	83 Main St.
Henry Bigelow Shaw	<i>Burlington</i>	253 S. Union St.
Joseph Tuttle Stearns	<i>Burlington</i>	44 S. Willard St.
Mattie Elizabeth Spafford	<i>Rutland</i>	85 Colchester Ave.
Charles Clinton Taylor	<i>Richford</i>	19 Converse Court

Literary-Scientific Students

Charles Atwood Bates	<i>Randolph</i>	4 N. College
Frank Parker Bingham	<i>Buffalo, N. Y.</i>	349 College St.
John Harold Buffum	<i>East Dorset</i>	19 Converse Court
Ruth Ida Norton	<i>Bristol</i>	51 N. Union St.
May Aurelia Peck	<i>Brookfield</i>	85 Colchester Ave.
Jessie Scott	<i>Burlington</i>	70 N. Union St.
Geo. Washington Tapley Whitney	<i>Bethel</i>	128 Colchester Ave.

Civil Engineering Students

Alfred Breen Cutter	<i>Marlborough, Mass.</i>	145 Main St.
Charles Hartt Hagar	<i>Burlington</i>	837 College St.
William John Knox	<i>Craftsbury</i>	10 N. College

JUNIORS : CLASS OF 1896

17

NAME	RESIDENCE	ROOM
George Soter Miller	<i>Lowell, Mass.</i>	145 Main St.
Daniel Luman Parker	<i>Bethel</i>	128 Colchester Ave.
Ernest Holley West	<i>Dorset</i>	Hayward Block

Mechanical Engineering Students

Fred Steele English	<i>Woodstock</i>	4 N. College
Nathaniel King	<i>Plymouth</i>	69 College St.

Electrical Engineering Students

Dana Edwin Bicknell	<i>Underhill</i>	2 Colchester Ave.
Norman Harold Camp	<i>Washington, D.C.</i>	146 Williams St.
Ernest Henry Chase	<i>Woodstock</i>	12 S. College
Sydney Farnsworth Weston	<i>Cascaderille, N. Y.</i>	83 N. Union St.

Chemical Students

John Mason Blake	<i>Essex</i>	Essex
Henry McIntyre Deavitt	<i>Montpelier</i>	27 N. Willard St.
Harry DeWitt Giddings	<i>Burlington</i>	Loomis St.
George Millar Sabin	<i>Malone, N. Y.</i>	349 College St.
Frank Robert Wright	<i>Newport</i>	27 N. Willard St.

Agricultural Students

James Wesley Boyce	<i>W. Burke</i>	11 Exp. Station
Joseph Benjamin Kidder	<i>E. Hardwick</i>	15 Exp. Station
Homer Jones Sargeant	<i>E. Corinth</i>	16 Exp. Station
Carl Cyrus Tracy	<i>Randolph</i>	11 Exp. Station

Special Students

Mary Luella Amell	<i>Burlington</i>	239 Colchester Ave.
Avery Douglas Billings	<i>Rutland</i>	Y. M. C. A. Building

UNIVERSITY OF VERMONT

NAME	RESIDENCE	ROOM
Frank Prosper Davison	<i>Burlington</i>	47 Pearl St.
Mary Gertrude Douglas	<i>Burlington</i>	229 Colchester Ave.
Carl Wallace Fisher	<i>Cabot</i>	15 Exp. Station
Watland Clair Lovell	<i>Springfield</i>	349 College St.
Lith Emma Smith	<i>Burlington</i>	415 Maple St.

SOPHOMORE CLASS

Classical Students

Samuel Payson Adams	<i>Stranton</i>	6 S. College
Alanche Brigham	<i>Hyde Park</i>	483 Main St.
George Moxham Burdick	<i>Croton Point, N. Y.</i>	60 Grant St.
Henry Wallace Clark	<i>Castleton</i>	5 S. College
Wy Worthington Felton	<i>Berkshire</i>	839 North St.
Lucy Elliot Hazen	<i>Richmond</i>	4 S. College
George Maynard Hogan	<i>St. Albans</i>	6 S. College
Minnie Hodges Hurley	<i>Northfield</i>	2 Colchester Ave.
Harlow Franklin Hyde	<i>Burlington</i>	133 Hyde St.
Ed Kinney Jackson	<i>Barre</i>	349 College St.
Lina Mabel Lucas	<i>St. Johnsbury</i>	2 Colchester Ave.
Ells Howard Mace	<i>Burlington</i>	47 Hyde St.
Theodora May Plumley	<i>Northfield</i>	2 Colchester Ave.
Robert Meech Walker	<i>Burlington</i>	347 S. Union St.
Arthur Roy Webster	<i>Irishburgh</i>	2 N. College
Wald Clark Wedgeworth	<i>W. Berkshire</i>	15 S. College
Fredrick Buell Willard	<i>Burlington</i>	244 Pearl St.

Literary-Scientific Students

Win Brown Allen	<i>Brimfield, Mass.</i>	349 College St.
John Stephen Buttles	<i>Brandon</i>	3 S. College
Charles Austin Coburn	<i>Enosburgh</i>	16 Hickok Place
My Alice Edwards	<i>Winooski</i>	Weaver St., Winooski
Franklin Reynolds Farrington	<i>Brandon</i>	349 College St.

NAME	RESIDENCE	ROOM
Arline Estelle Ladd	<i>Thetford</i>	35 Colchester Ave.
Adele Irene Lee	<i>Burlington</i>	438 S. Union St.
Albert Ernest Lewis	<i>W. Randolph</i>	14 S. College
Frederic Fuller Lincoln	<i>Malone, N. Y.</i>	349 College St.
Margaret Alice Millham	<i>Williston</i>	92 S. Winooski Ave.
Grace Alice Noyes	<i>Hyde Park</i>	51 N. Union St.
Katharine Jane Page	<i>Hinesburgh</i>	80 College St.
Helen Frances Slade	<i>Thetford</i>	35 Colchester Ave.
Ernest Norman Smith	<i>Woodstock</i>	Hayward Block
Bessie Lou Stearns	<i>Burlington</i>	85 Loomis St.
Katharine Grace Wadleigh	<i>E. Berkshire</i>	2 Colchester Ave.
Georgiana Maude Williams	<i>Burlington</i>	205 Elmwood Ave.

Civil Engineering Students

Wells Eugene Bennett	<i>Lacrosse, Wis.</i>	4 Hickok Place
Frank Porter Davis	<i>Essex</i>	388 S. Union St.
James Lyford Davis	<i>Fairlee</i>	15 S. College
Leonard Smith Doten	<i>Burlington</i>	51 Loomis St.
Douglas Winfield Holton	<i>Burlington</i>	7 Johnson St.
George Peter Parady	<i>Burlington</i>	392 North St.
Hugh Aaron Seager	<i>Brandon</i>	3 S. College
George Edson Philip Smith	<i>W. Burke</i>	8 S. College
Benjamin James Wyatt	<i>Burlington</i>	26 Interval Ave.

Mechanical Engineering Students

Ora Alonzo Colby	<i>Woodstock</i>	22 Buell St.
Henry Hall Hagar	<i>Burlington</i>	337 College St.
William James Sayward	<i>Woodstock</i>	22 Buell St.

Electrical Engineering Students

Arthur Otis Howe	<i>Newfane</i>	229 Colchester Ave.
Almon Beede Stetson	<i>Wadham's Mills, N. Y.</i>	22 Buell St.

Chemical Students

NAME	RESIDENCE	ROOM
Albert Loomis Clark	<i>Georgia</i>	13 S. College
Lawrence Barnes Hayward	<i>Burlington</i>	288 Main St.
Walter Pope Kern	<i>Burlington</i>	72 S. Winooski Ave.
William Wallace Murray	<i>Winooski</i>	Canal St., Winooski
Charles Flagg Whitney	<i>Williston</i>	8 S. College
Charles Augustus Wronn	<i>Burlington</i>	14 Buell St.

Agricultural Students

Charles Frederick Clark	<i>Glover</i>	14 Exp. Station
Walter Elisha Cox	<i>Woodstock</i>	17 Exp. Station
Edward Elisha Herrick	<i>Milton</i>	16 Exp. Station
George Campbell Hubbard	<i>Springfield</i>	Exp. Farm
William Allen Orton	<i>Fairfax</i>	16 Exp. Station
Madison Alden Parker	<i>Concord</i>	14 Exp. Station

Special Student

Mary Tyler Thurber	<i>Plymouth, Mass.</i>	35 S. Prospect St.
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FRESHMAN CLASS**Classical Students**

Charles Arthur Beach	<i>Burlington</i>	46 King St.
Edward Payson Bigelow	<i>Stowe</i>	3 N. College
William Henry Burt	<i>Taunton, Mass.</i>	138 Colchester Ave.
James Ora Coddling	<i>Westminster</i>	West 16 N. College
Samuel Warren Hamilton	<i>Rutland</i>	258 S. Willard St.
Carlton Dexter Howe	<i>Newfane</i>	6 N. College
Clifton Durant Howe	<i>Newfane</i>	6 N. College
Peer Prescott Johnson	<i>Burlington</i>	36 Converse Court
Fred Halsey Larabee	<i>Craftsbury</i>	2 N. College

NAME	RESIDENCE	ROOM
William Barry Leavens	<i>Passaic, N. J.</i>	10 S. College
Albert Fay Lowell	<i>Burlington</i>	49 Mansfield Ave.
Ida Maud Miles	<i>Barton</i>	38 Buell St.
Mabel Augusta Miles	<i>Barton</i>	38 Buell St.
Henry Farnham Perkins	<i>Burlington</i>	205 S. Prospect St.
Perley Orman Ray	<i>Burlington</i>	48 Elmwood Ave.
Russell Wales Taft	<i>Burlington</i>	291 S. Union St.
Frank Dutton Thompson	<i>Irasburgh</i>	349 College St.
John Cutler Torrey	<i>Burlington</i>	75 S. Prospect St.
Julius Spear Turrill	<i>Burlington</i>	258 S. Willard St.
Charles Strain Van Patten	<i>Burlington</i>	386 Pearl St.
Harris Hard Walker	<i>Burlington</i>	181 S. Union St.
Ellery Elmer Webster	<i>Barton</i>	2 N. College
George B. Whitney	<i>Peru</i>	

Literary-Scientific Students

William Silas Bean	<i>Newport</i>	27 N. Willard St.
Florence Mai Bradley	<i>Burlington</i>	78 Grant St.
Carrie Esther Deavitt	<i>Montpelier</i>	35 Colchester Ave.
William James Forbes	<i>Fairhaven</i>	849 College St.
Helen Grace Hendee	<i>Brandon</i>	150 Bank St.
Joel Cleveland Hibbard	<i>Newport</i>	133 Maple St.
Elwyn Nehemiah Lovewell	<i>Fairlee</i>	2 N. College
Walter Towne Mott	<i>Champlain, N. Y.</i>	247 Pearl St.
Clarence Elbert Noyes	<i>Castleton</i>	3 S. College
Roy Leonard Patrick	<i>Burlington</i>	89 S. Union St.
Marian Brigham Rustedt	<i>Richford</i>	38 Buell St.
Ide Gill Sargeant	<i>Granville</i>	57 Elmwood Ave.
Mabel Sophia Way	<i>Burlington</i>	82 King St.
Robert Child Wilson	<i>Bethel</i>	1 N. College

Engineering Students

Ernest Hyde Bell	<i>St. Albans</i>	11 S. College
Floy Edson Booth	<i>Swanton</i>	Greene St.

NAME	RESIDENCE	ROOM
William LeRoy Bryant	<i>Ludlow</i>	415 Pearl St.
Nelson Bertrand Keeler	<i>Hyde Park</i>	349 College St.
Edward R. Mack	<i>Hardwick</i>	51 N. Union St.
Charles Stewart Raymond	<i>Ludlow</i>	415 Pearl St.
Merton Corey Robbins	<i>Brattleboro</i>	14 N. College
Cleveland Wead Smith	<i>Plattsburgh, N. Y.</i>	88 S. Willard St.
Isaac John Vail	<i>Orwell</i>	349 College St.
Edward Philo Woodbury	<i>Burlington</i>	416 Pearl St.

Chemical Students

Louis Collins Dodd	<i>Buffalo, N. Y.</i>	349 College St.
Henry Lewis Taft	<i>Burlington</i>	197 S. Willard St.
Charles Douglas Waters	<i>Winooski</i>	E. Spring St., Winooski
William Thomas Whelan	<i>Montpelier</i>	47 Pearl St.

Agricultural Students

Lawrence Wesley Barton	<i>Ludlow</i>	20 Exp. Station
Lewis Walbridge English	<i>Woodstock</i>	17 Exp. Station
Arthur Warren Floyd	<i>Lowell, Mass.</i>	11 S. College
Forrest Henry Guild	<i>Chester</i>	19 Exp. Station
Albert Frederick Halford	<i>Knowlton, P. Q.</i>	18 Exp. Station
Iphus Harvey Hall	<i>Lyndon</i>	Exp. Farm
William Baker Lawrence	<i>Ludlow</i>	19 Exp. Station
Warner Jackson Morse	<i>Waterbury Centre</i>	Exp. Farm
William Comstock Perry	<i>Rowayton, Conn.</i>	18 Exp. Station
Herbert Leon Priest	<i>Plymouth</i>	20 Exp. Station
Oscar Spear	<i>Charlotte</i>	18 Exp. Station
Duncan Stuart	<i>Burlington</i>	Exp. Farm

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GENERAL STATEMENT OF INSTRUCTION

Instruction is given in the University in :

I. The Department of Arts, which embraces :

1. The usual Classical course in the Languages, ancient and modern, Mathematics, Physical Science, Mental, Moral and Political Philosophy, Rhetoric, Literature and History, leading to the degree of Bachelor of Arts ;

2. The Literary-Scientific course, in which the studies of the Classical course are pursued with the exception of Greek, and which leads to the degree of Bachelor of Philosophy.

II. The Scientific Departments, embracing the studies required (1) by the Morrill Act of 1862, which provides that instruction be given not only in "Classical and other Scientific studies," but especially in "branches of learning relating to Agriculture and the Mechanic Arts;" and (2) by the Endowment Act of 1890, which provides for instruction in "Agriculture, the Mechanic Arts, the English language, and the various branches of Mathematical, Physical, Natural and Economic science, with special reference to their applications in the industries of life."

These Departments are :

1. The Department of Engineering, which includes (a) Civil and Sanitary Engineering ; (b) Electrical Engineering ; (c) Mechanical Engineering.

2. The Department of Chemistry.

3. The Department of Agriculture.

The degree in each case is Bachelor of Science ; see Index, *degrees*.

III. The Department of Medicine, leading to the degree of Doctor of Medicine.

ADMISSION

Candidates for admission to the University must produce satisfactory testimonials of good moral character and must be at least fifteen years of age.

Students coming from another College must present a certificate of regular admission from the institution they have left, and furnish satisfactory evidence of proficiency in all the studies—or their equivalents—which have been pursued by the class they propose to enter. For admission to an advanced class, a corresponding increase of age is required, and a thorough knowledge of all the studies that have been pursued by the students of the same class.

Young women are admitted to all courses in Arts and Science upon the same conditions as young men. They are required to room and board in families approved by the Faculty.

REQUIREMENTS FOR ADMISSION TO THE CLASSICAL DEPARTMENT

Greek. (1) Greek Grammar, including Prosody; (2) Xenophon's *Anabasis*, four books; (3) Homer's *Iliad*, three books; (4) Woodruff's *Greek Prose Composition*; (5) Translation at sight.

Latin. (1) Latin Grammar, including Prosody; (2) The first thirty lessons in Jones's *Latin Prose Composition*; (3) *Cæsar*, four books; or *First Latin Readings* by Arrowsmith and Whicher; (4) *Cicero*, six orations and the *De Amicitia*; (5) *Virgil*, six books of the *Æneid* and the *Eclogues*.

In the case of Latin and Greek authors, substitutes will be accepted if full equivalents for the work here prescribed.

Teachers are urgently requested to give their pupils practice in reading at sight. They are also urged to have their pupils read aloud both *Greek and Latin* as much as possible, that the ear may be

trained to the sound of the language and that the words may gradually come to convey a meaning to the pupil's mind immediately and not through their English equivalents.

In the pronunciation of Greek, the rules of Hadley and Allen's Grammar, pp. 4, 5, 7, should be followed. The "Roman" method of pronouncing Latin is used in the class room.

Mathematics. (1) Arithmetic, including the metric system ; (2) Algebra, through Quadratic Equations ; (3) Plane Geometry.

English. (1) English Grammar ; (2) Orthoepey ; (3) English Composition, to be based for 1895 upon the following works : Shakspeare's The Merchant of Venice ; The Sir Roger de Coverley Papers in the Spectator ; Irving's Sketch Book ; Scott's Abbot ; Macaulay's Essay on Addison.

History. (1) Ancient and Modern Geography ; (2) Ancien History ; (3) Greek History to Alexander ; (4) Roman History to Augustus.

The examination in history will be based upon the Students' Series for the East and Greece, and upon Leighton's Rome.

LITERARY-SCIENTIFIC COURSE

The requirements for admission to the Literary-Scientific course are the same as for the Classical course excepting that in place of Greek an equivalent in French, or in German, or in some of the Sciences will be required.

SCIENTIFIC DEPARTMENTS

The Mathematics, English and Geography as specified in the requirements for the Classical department are required for admission to the Scientific departments, except that for entrance to the Engineering department both *Plane and Solid Geometry are now necessary*. This department will probably soon make the further requirement of Higher Algebra. For admission to the Chemical and Medical departments, consult the fuller statements of these departments.

Examinations for admission will be held in the College Building at the close and at the opening of each college year. See Calendar.

ADMISSION BY CERTIFICATE

Candidates will be admitted to any of the above Departments *without examination*, in case they bring Certificates of Graduation from Preparatory Schools whose courses of study fully meet the above requirements. If the certificate is defective in respect to any required study, the student will be examined in that study. Certificates must be made out on blank forms furnished by the Secretary of the Faculty. Students admitted by certificate will be regarded as being on probation during the first half-year.

ADMISSION OF SPECIAL STUDENTS

Persons of suitable age and attainments may, by special permission of the Faculty and by the payment of a specified fee, pursue certain studies in connection with the regular college classes without becoming matriculate members of the University. The classes which are open to such students, with the conditions of admission, will be made known upon application to the President. Special Students are members of the University from the time of their admission, but are not candidates for a degree. They enjoy the privileges of the University and are subject to all its regulations.

REGISTRATION

Every student upon entering the University is required to present his papers to the President on the Tuesday preceding the opening of the annual session. Upon approval, he will receive from the President a Certificate of Admission. On the following Saturday the student is to deliver his certificate to the Registrar, and to enter his name upon the University Register. He will receive from the Registrar a Certificate of Registration which is to be delivered to the Treasurer, whereupon he becomes entitled to pay the entrance fee of ten dollars. The Treasurer's receipt is to be returned to the Registrar for record, after which the student will be considered a regular member of the University.

COURSES OF INSTRUCTION*

GREEK

1. Lysias, Selections.—Plato, Apology and Crito.—Homer, Odyssey, four or five books.—Prose Composition, exercises based to some extent upon the authors read.
Required, Freshman year, four hours.
2. Euripides, Ion, introduction to study of the Greek Drama.—Demosthenes, Philippics and Olynthiacs.—Sophocles, Oedipus Rex.—Prose Composition, for a part of the year.
Elective, three hours.

[Candidates for Sophomore Honors are required to read in addition one play, and specified portions of Homer and Demosthenes.]

3. Pausanias, Book I, with special study of the monuments of the Acropolis. Lectures, collateral reading, theses.
Elective, three hours.

[Course 3 will be omitted in 1894-95.]

4. Plato, Phædo.—Aristotle, Poetics.—Euripides, four plays.—Study of assigned topics.
Elective, three hours.

PROFESSOR WHEELER.

LATIN

1. Livy.—Tacitus.—Horace, Odes.—Prose Composition.
Required, Freshman year, four hours.
2. Cicero.—Plautus.—Terence.—Horace, Epistles.
Elective, three hours.
3. Quintilian.—Horace, Satires.—Juvenal.—Persius.
Elective, three hours.

*When not otherwise specified, courses run through the year.

4. Catullus.—Lucretius.—Early Latin.

Advanced course, open only to those who have taken courses 2 and 3.

Elective, two hours.

PROFESSOR GOODRICH.

ENGLISH

1. Rhetoric, English Composition, and Etymology.—Elementary Course.—Text-books, Genung's Outlines of Rhetoric, and Trench on the Study of Words.

Required, Freshman year, two hours.

2. Criticism and Composition.—Study of Invention and of selected prose masterpieces.—Text books, Genung's Practical Rhetoric and Rhetorical Analysis.—Constant drill in composition.—Weekly lectures upon the History of English Literature, with Stopford Brooke's Primer as a manual.

Required, Sophomore year, three hours.

3. English Literature from the Restoration to the Present Day.—Lectures and Seminary work upon the poets and important literary movements of the last two centuries.—Lectures upon the History and Principles of English Versification.

Elective, three hours.

4. Anglo-Saxon.—Training in early linguistic forms and in development of English.—Literary study of Anglo-Saxon poetry.—Text book, Bright's Anglo-Saxon Reader.

Elective, two hours, first half-year.

5. Chaucer.—Supplementary to 4.—Further study of linguistic development.—Chaucer's poetry.—Collateral reading in the works of his contemporaries.

Elective, two hours, second half-year.

PROFESSOR TUPPER.

Members of the Freshman and Sophomore classes are required to deliver two selected declamations during the year. Juniors are required to debate twice during the year, and Seniors are required to deliver two original orations, or to write four essays during the year.

FRENCH

1. Elementary French.—Grandgent's Short French Grammar ; Van Daell's Introduction to French Authors. During the second half-year, the following texts are read: Ludovic Halévy : l'Abbé Constantin ; Souvestre: un Philosophe sous les Toits; and, for sight reading, Labiche, le Voyage de Monsieur Perrichon. Practice in composition and conversation throughout the year.
Alternative for Literary-Scientific Freshmen and for Classical Sophomores with German 1 ; four hours.
2. French Prose and Poetry.—The Study of individual Writers and of particular Periods in the History of French Literature. The French Writers of the First Half of the Nineteenth Century, with special Study of Victor Hugo, constitutes the work for 1894-95.
Elective, two hours.
3. Practice in Speaking and Writing French.
Elective, one hour.
4. Advanced Course.—Masterpieces of French Dramatic Literature from Corneille to the present time. Weekly lectures, and written reports upon collateral reading.
Elective, two hours.
5. French Seminary. The study of special topics in the French Literature of the Nineteenth Century. Weekly lectures and monthly Seminary meetings for the discussion of reports, and the reading of papers. The work of the

Seminary for 1894-95 is a study of contemporary French writers.

Elective, counting three hours.

[Courses 2, 3, 4 and 5 are changed from year to year, so that students wishing to elect them more than once may do so with profit. Courses 4 and 5 are open only to those who have had two or more years of French in college, and have acquired the ability to read ordinary prose and poetry easily.]

PROFESSOR KITCHIN.

ITALIAN

First half-year. Grandgent's Italian Grammar; the same author's Italian Composition; Manzoni: *I Promessi Sposi*.

Second half-year. Dante: *La Vita Nuova*, entire, and *La Divina Commedia*, selected cantos.

Elective to students in the Classical and the Literary-Scientific courses who have had at least two years of French, three hours.

PROFESSOR KITCHIN.

GERMAN

1. Elementary Course. Joynes-Meissner, German Grammar with written exercises; Brandt's German Reader; Heine's *Buch der Lieder*; Goethe's *Hermann und Dorothea*. Exercises in conversation based on the systems of Rosenthal, Stein, Meissner, etc.

Alternative for Literary-Scientific Freshmen and for Classical Sophomores with French 1; open also to Juniors; four hours.

2. Composition; Whitney's German Grammar with written exercises and exercises in conversation. Schiller, *Wallenstein: Ein Dramatisches Gedicht*. Erster Theil: *Wallensteins Lager*, *Die Piccolomini*. Zweiter Theil: *Wallensteins Tod*. Goethe, *Goetz von Berlichingen*; *Egmont*.
Elective, three hours.

3. a. Introduction to the Study of Goethe. Lectures and collateral reading. Die Leiden des jungen Werthers; extracts from Wilhelm Meisters Lehrjahre; Iphigenie auf Tauris: Tasso, Faust (Erster Theil).
- b. Outlines of German Literature from Lessing to the death of Goethe. Lectures.
Elective, two hours.

— PROFESSOR HUFF.

PHILOSOPHY

1. Elementary Course.—Brief general Introduction to Philosophy, in lectures.—Logic; text-book, Minto's Logic Inductive and Deductive.—Ethics; text-book, Murray's Introduction to Ethics.
Required, Junior year, three hours.
2. Advanced Course.—Psychology; lectures and text-book; Höffding's Outlines of Psychology. Ethics; Recent Ethical Theories; readings, discussions and theses.—Theism; text-book, Flint's Theism.
Elective, Senior year, three hours.
3. History of Philosophy.—Lectures and text-books; Zeller's Outline of the History of Greek Philosophy, Falckenberg's History of Modern Philosophy.
Elective, Junior and Senior years, two hours.
4. Metaphysics.—Lectures and text-book; Lotze's Outlines of Metaphysic.
Elective, Senior year, first-half, two hours.
5. Fine Art.—Lectures and text-book; J. Torrey's A Theory of Fine Art.
Elective, Senior year, second half, two hours.
6. Special Course in German Philosophy.—From Kant to Hegel.
Elective, Senior year, three hours.

PROFESSOR TORREY.

HISTORY

- . **General History.** A rapid review of Ancient and Classical History; a more detailed study of Mediaeval History from the Fall of Rome to the Reformation. Text-book, Fisher's Outlines of Universal History. Lectures, daily recitations with constant practice in investigation, and theses. *Required, Sophomore year, four hours.*
- . **French History.** The growth of Royalty from the earliest times to its culmination in the Absolute Monarchy; l'Ancien Régime. The second half is devoted to the Revolution, its causes, progress and results, its significance for modern history. Lectures, frequent tests, theses. Hand-book, Duruy. *Elective for Juniors, three hours.*
- English History.** English institutions from Magna Charta to the Cabinet; the origin, growth, contest, and final establishment of Parliamentary Government. Lectures, frequent tests, theses. Hand-book, Gardiner's Student's History. *Elective for Seniors and Juniors, three hours.*

PROFESSOR EMERSON,

 SOCIOLOGY

- n historical investigation of the origin and constitution of primitive society; its transformation in the municipal stage and subsequently; the basis of modern society; the state; the economic, political and social forces operative in modern society; recent transformations; the goal. Lectures, constant investigation and discussion, theses. *Elective for Seniors, two hours, with one hour of collateral reading.*

PROFESSOR EMERSON.

POLITICAL SCIENCE

1. Political Economy.—Text-book, F. A. Walker's Advanced Political Economy. Lectures and discussions.
Required, two hours.
2. Constitutional History ; Cooley's U. S. Constitution.—Comparative Constitutional Law; lectures and collateral readings. International Law; Woolsey's International Law the basis of instruction.—Political Economy, applied to open questions by lectures and discussions.
Elective, two hours.

PRESIDENT BUCKHAM.

MATHEMATICS

1. a. Algebra.—Binomial and Exponential Theorems. Theory of Equations. Wentworth's College Algebra.
b. Geometry.—Solid and Spherical. Chauvenet's Geometry.
c. Trigonometry.—Plane and Spherical. Miller's Trigonometry.
Required, Freshman year, five hours.

PROFESSOR SLOCUM.
2. a. Review of Analytical Trigonometry, followed by Analytical Geometry, with lectures on the Synthetical Geometry of Conics and on Higher Plane Curves.
b. Elements of Differential and Integral Calculus.—Text books and lectures.
Required of Students in the Engineering Department.
Elective for others, four hours.
3. a. Integral Calculus and Astronomy.
b. Differential Equations.
Three hours.
4. a. Analytic Geometry of three dimensions.
b. Methods used in the solution of Geometric problems of construction and Introduction to Modern Projective Geometry.
Three hours.

Courses 2, 3 and 4 are elective for academic students.

Courses 2 and 3 are required of students in Engineering.

PROFESSOR DANIELS.

The Honor Examinations for the Sophomore year will be on the geometrical and algebraical study of complex numbers, with De Moivre's Theorem and the Theory of Equations.

A candidate for Senior Honors may choose his subject from studies in Analytical Geometry, Modern Geometry, Higher Algebra, Differential Equations, Mathematical Physics.

PHYSICS

1. Properties of Matter.—Dynamics, Sound and Light.—Lectures text-book most nearly followed, Deschanel's Natural Philosophy, parts I and III.

Required of Engineering and Chemical Sophomores; elective for others; four hours, first half-year.

[Next year this course will include, in addition to the above subjects, those of Heat, Electricity and Magnetism. Lectures three hours a week, with Laboratory Work four hours a week, throughout the year. The Lecture course (without the Laboratory course) is elective to students not in the Engineering and Chemical departments, at the discretion of the instructor.]

- [2. An Advanced Laboratory course will also be offered next year in which experiments will be chosen to suit the needs of those who take the course.]

- [3. Courses on special Topics in Heat, Sound, Light, or Electricity will also be given to students who have gained a knowledge of Analytical Geometry and Calculus, should a sufficient number require them. Students taking these courses will be required to pursue the Advanced Laboratory course.

Elective, lectures two hours a week.]

PROFESSOR SLOCUM.

NATURAL SCIENCE

1. Physiology and Hygiene.—Lectures.
Required, Freshman year, one hour.
2. Physiology, Advanced Course.—Recitations and Lectures.—
Martin's Human Body.
Elective, Junior year, one hour.

PROFESSOR PERKINS.
3. Elements of the Biology of Plants.—A study of a few typical
species of plants with reference to structure, functions,
development and relationship.—Lectures, collateral read-
ing and laboratory work.*
Required of Juniors in the Agricultural department ;
Elective for others who have taken Chemistry 1 a, first
half-year, three hours.
[This course with *four laboratory sessions*, per week
may be elected as 8 a.]

PROFESSOR JONES.
4. Elements of the Biology of Animals.—Lectures and laboratory
work.
Elective for students who have taken Chemistry 1 a,
second half-year, three hours.
5. Advanced Biology of Animals.—Laboratory work in the study of
Vertebrate Morphology.
Elective for students who have taken course 4, four to
twelve hours.
6. Entomology.—Laboratory course in Structural and Systematic
Entomology, with special reference to insects which are
injurious to vegetation.

PROFESSOR PERKINS.

*In laboratory work two hours count as one.

7. *Elements of the Morphology and Classification of Phanerogams. —
Recitations and laboratory work.
Required of Sophomores in the Agricultural department ; elective for others, three hours.
8. Field-work in Botany.—A study of the local flora by means of lectures and field excursions.
This class will be limited in size and is open only to students who have taken course 3 or 7, and by special permission of the instructor.
Elective, second half-year, one hour.
9. Physiology of Plants.—Recitations, laboratory work, and collateral reading.
Advanced course, open only to those who have taken course 3 or 7 ; elective, second half-year, three hours.
10. Mycology.—A study of Fungi in their relation to plant diseases.—Lectures, laboratory work, and collateral reading.
Required of Seniors in the Agricultural department, and open to others by permission of the instructor : second half-year, three hours.
11. Photographic Methods in Botany.
Advanced course ; second half-year, one hour.
12. Geology.—Recitations and lectures.—Le Conte's Elements.
Elective, second half-year, three hours.
13. Anthropology.—Lectures.
Elective, first half-year, three hours.

PROFESSOR JONES.

PROFESSOR PERKINS.

*Students intending to take two years work in Botany should elect course 7 in the Sophomore year, if possible, and courses 3 and 8 in the Junior year.

14. Mineralogy, Descriptive and Determinative.—Dana's Manual of Mineralogy.

Required of Engineering and Chemical students, and open to Classical students who have taken Chemistry 1; first half-year, three hours.

PROFESSOR LOOMIS

Candidates for honors may select from some department of either Biology or Geology a subject for special and original investigation, which must be carried on under the direction of the Instructor; the results must be presented at the close of Senior year in the form of a thesis.

ENGINEERING

DRAWING

1. a. Elementary Projections.
Five hours, until December.
- b. Descriptive Geometry.
Five hours, December until April.
- c. Shades and Shadows.
Five hours, April until June.
- d. Pen Topography and Lettering.
Eight hours, second half-year.
2. a. Linear Perspective.
Four hours, until December.
- b. Shading and Coloring.
Four hours, December until February.
- c. Isometrical Projections.
Four hours, February until April.

- d. Detail Working Drawings of Machines.
Five hours, first half-year.
- e. Construction of Gear Teeth.
Four hours, second half-year.
- f. Spherical Projections.
Four hours, April until June.
- 3. a. Mapping Surveys.
Ten hours, first half-year.
- b. Analysis of Valve Gears, and Steam Engine Details.
Four hours, first half-year.
- c. Stone Cutting.
Two hours, second half-year.
- d. Structural Drawing.
Six hours, second half-year.
- 4. a. Problems in Designs.
Four hours, second half-year.
- b. Detail Drawing and Design.
Four hours, first half-year.

SURVEYING

- 1. a. Use of Instruments : Compass, Level and Transit ; Land Surveying ; Recitations and Field Work.
Four hours, second half-year.
- b. Summer School of Surveying : Land Surveying, Traversing, Levelling and Topographical Surveying.
One month in summer vacation.
- 2. a. Computing and Plotting the work of the Summer School.
Three hours, first half-year.
- b. City Surveying : Solar Compass and Transit ; Recitations, Lectures and Field Work.
Three hours, second half-year.
- c. Summer School of Surveying : Geodetic, Hydrographic and Topographical Surveying.
One month in the summer vacation.

3. a. Computing and Mapping the work of the Summer School.
Three hours, first half-year.
- b. Railroad Surveying : Recitations and Field Work.
Three hours, second half-year.

MECHANICS

1. a. Forces and Motion. Recitations.
Five hours, until December.
- b. Stresses in Roof and Bridge Trusses. Recitations.
Five hours, December until April.
- c. Strength of Materials : Theory of Flexure and Torsion.
Recitations.
Five hours, April until June.
2. Hydrostatics and Hydraulics. Recitations.
Four hours until April.
3. Graphical Statics : Study of Arches, Domes and Retaining Walls.
Five hours, first half-year.
4. Advanced Bridge Work. Lectures and Recitations.
Three hours, second half-year.

CIVIL ENGINEERING

1. Materials, their properties, preparation and use.
 - a. Limes, Cements, Mortars, Brick and Stone. Lectures.
Two hours, first half-year.
 - b. Timber, Iron and Steel. Lectures.
Two hours, second half-year.
1. a. Foundations of Structures on Land and in Water.
Lectures.
Two hours, until December.
- b. River Improvements : Harbor and Canal Construction :
Railway Construction and Equipment. Lectures.
Two hours, December until second half-year.

- c. Construction of Roads, Streets and Pavements. Lectures, Recitations and Field Work.
Three hours, second half-year.
- 8. Contracts and Specifications. Lectures.
Two hours, first half-year.

SANITARY ENGINEERING

- 1. Water Supply, Sewerage, general principles of Plumbing and Heating, with details of construction. Lectures.
Three hours, second half-year.

PROFESSOR BARBOUR.
PROFESSOR VOTEY.

MECHANICAL ENGINEERING

- 1. a. Elements of Mechanism.
Two hours, first half-year.
 - b. Gearing and Machine Tools.
Three hours, second half-year.
- 2. a. Valve Gears and Thermodynamics.
Four hours, first half-year.
 - b. Thermodynamics; Boilers, Pumps and Injectors.
Four hours, second half-year.
 - c. Laboratory Work; Engine and Calorimeter Tests.
Two hours, second half-year.
- 3. a. Dynamics of Machinery.
Three hours, first half-year.
 - b. Motors and the Transmission of Power.
Three hours, second half-year.
 - c. Machine Design.
Four hours, first half-year.
 - d. Laboratory Work; Boiler, Pump and Power Tests, and Strength of Materials.
Two hours, second half-year.

SHOP-WORK

1. a. Carpentry.
Two hours, first half-year.
- b. Wood Turning and Pattern Making.
Two hours, second half-year.
2. a. Forging of Iron and Steel.
Three hours, first half-year.
- b. Chipping, Filing, and Lathe Work.
Three hours, second half-year.
3. a. Machine Shop Work.
Three hours, entire year, except last four weeks.
- b. Moulding and Founding.
Three hours, last four weeks of year.

PROFESSOR AYER.

MR. EATON.

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ELECTRICAL ENGINEERING

1. a. Physics.—Electricity and Magnetism.
Three hours, second half-year.
- b. Electrical Laboratory.—Elementary measurements.
Two hours, second half-year.
2. a. Theory of the Dynamo.—Magnetic Circuit and Induction.
Two hours, first half-year.
- b. Dynamo Practice.—Construction and Operation of Dynamo-Electric Machinery.
Two hours, first half-year.
- c. Electrical Laboratory.—Tests of Efficiency and Regulation.
Three hours, first half-year.
3. a. Theory of the Dynamo.—Characteristic Curves and Compound Windings.
Three hours, second half-year.

- b. Dynamo Practice and Design.—Types of direct current Dynamos and Motors.
Three hours, second half-year.
- c. Electrical Laboratory.—Determination of Characteristic Curves.
Three hours, second half-year.
- 4. a. Theory of Alternating Currents; Circuits containing Resistance and Self-induction.
Three hours, first half-year.
- b. Electric Lighting and Power Transmission.
Three hours, first half-year.
- c. Electrical Laboratory; measurement of alternating currents.
Two hours, first half-year.
- a. Theory of the Transformer; alternating current commercial apparatus.
Two hours, second half-year.
- b. Electric Railways, electro-metallurgy, cable-laying, law of initial cost, specifications, etc.
Three hours, second half-year.
- c. Electrical Laboratory; plotting current curves, and original investigations.
Four hours, second half-year.

PROFESSOR STORRS.

CHEMISTRY

- 1. a. General Chemistry.—Lectures.
Four hours, first half-year.
- b. Laboratory work.—Elementary Experiments and Elementary Qualitative Analysis.
Six to eight hours, second half-year.
Elective for students in the Classical department.

2. Qualitative Analysis.—Advanced Course; Laboratory work, with occasional class meetings and recitations.
Ten to fifteen hours, one half-year.
3. Quantitative Analysis.—Laboratory work, with class meetings for discussion of methods.
Fifteen hours, one year or longer.
4. Stoichiometry.—Lectures.
Two hours, one half-year.
5. Industrial Chemistry.
 - a. Assaying.—Ores, furnace products, etc.
One half-year. Hours of work to be assigned.
 - b. Lectures.—Inspection of constructional plans of works, with occasional excursions to manufacturing establishments, when such may be made conveniently.
One half-year. Hours to be assigned.
6. History of Chemistry.—Lectures.
About eight weeks, one hour.
7. Organic Chemistry.
 - a. Lectures.—Theory and Synthesis of Carbon Compounds.
One year, two hours.
 - b. Laboratory work—Preparation of compounds, analyses, etc.
 - c. Commercial Organic Analysis.—Lectures.
Two hours, one half-year.

[Courses 7. a. and 5. b. are given in alternate years.]

Practical use of the Spectroscope is offered to students who are qualified for that order of work, at some convenient time during the four years.

PROFESSOR MERRILL.
MR. STEARNS.

AGRICULTURE

1. Farm Management and Farm Accounts; economy, general and special farming, markets, buildings, selection of land, roads and fences, yearly plans.
One hour, first half-year.
2. Farm Implements and Hand Tools; plows, harrows, cultivators, rollers, mowing and harvesting machines, cutters, spades, hoes, etc., etc.
One hour, second half-year.
3. Soils, Tillage and Drainage, Fertilizers: rock and soil, origin, composition, decomposition, and characteristics; elements of plant food, natural manures, artificial fertilizers, sources, manufacture, inspection, selection, etc.
Five hours, first half-year. PROFESSOR HILLS.
4. Forage and Root Crops, Grains and Grasses, Special Crops: corn, leguminous plants, turnips, beets, mangel-wurtzels, wheat, oats, rye, barley, buckwheat, hay, pasturage, botany of the grasses; tobacco, cranberry, etc.
Four hours, second half-year. PROFESSOR JONES.
5. Stock Feeding; Dairying; animal nutrition; fodders and feeds, feeding standards and rations; feeding for beef, milk, mutton, wool, pork, work; composition and testing of milk, creaming and churning, methods of handling, practical separator and churn work.
Four hours, first half-year. PROFESSOR HILLS.
6. Breeds of Live Stock, Stock Breeding: breed characteristics of horses, cattle, sheep, swine, poultry; breeding as an art, heredity, atavism, fecundity, in-and-in breeding; cross breeding, sex, pedigree, selection, etc.
Four hours, second half-year. DR. RICH.

7. **Experiment Station Methods and Research :** Experiment Station movement in Europe and America, nature of station work, station bulletins and reports, special lines of work.
Two hours, first half-year. PROFESSOR HILLS.
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HORTICULTURE

1. **Market Gardening and Floriculture :** methods of propagation, men fitted for the work, sites, hot-beds and forcing houses, tools, proper soils, shipping, markets, special treatment of different vegetable and floral products.
Three hours, first half-year.
2. **Fruit Culture, Landscape Gardening, and Forestry :** fruit growing, localities, soils, markets, protection, tools, pruning, shipping, nursery growing, budding and grafting ; how to lay out and plant grounds and roads, budding plants, trees and shrubs ; forest planting, where profitable, how to plant.
Three hours, second half-year. ————
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VETERINARY SCIENCE

1. **Comparative Anatomy of Domestic Animals :** bones, joints, muscles, arteries, nerves and viscera ; by lecture, chart and dissection.
Two hours, first half-year.
2. **Comparative Physiology of Domestic Animals :** circulation, respiration, food and digestion, absorption, secretion, animal heat, nutrition and diet, nervous system, special senses, reproduction, development.
Three hours, second half-year.

3. Histology : methods of hardening and staining tissues, mounting specimens, microscopic study of specimens.
Two hours, first half-year.
4. Bacteriology : Diseases of Animals : Preparation of nutrient media ; methods of cultivation, staining, inoculation, etc. Pathology ; symptoms and differential diagnosis of contagious diseases of domestic animals ; disinfection, immunity.
Three hours, first half-year.

DR. RICH.

CLASSICAL DEPARTMENT

FACULTY

MATTHEW H. BUCKHAM, D. D., *Political and Social Philosophy.*

HENRY A. P. TORREY, A. M., *Intellectual and Moral Philosophy.*

GEORGE H. PERKINS, Ph. D., *Zoology, Botany and Geology.*

JOHN E. GOODRICH, A. M., *Latin.*

SAMUEL F. EMERSON, Ph. D., *History.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics.*

JAMES R. WHEELER, Ph. D., *Greek.*

LEWIS J. HUFF, *German.*

WILLIAM C KITCHIN, Ph. D., *French and Italian.*

FREDERICK TUPPER, JR., Ph. D., *Rhetoric and English.*

ALLISON WING SLOCUM, A. M., *Mathematics.*

CAPT. HERBERT E. TUTHERLY, A. M., *Military Science and Tactics.*

ELECTIVE AND REQUIRED STUDIES

I. Candidates for the degree of A. B., after pursuing a required course of Greek, Latin, Mathematics, English and Hygiene through the Freshman year, are allowed to elect a certain number of their studies, the number increasing in the later years of the College course until the Senior year, when all studies, except those of the Military department, are elective. Each student is required to take such a number of electives as will bring his total work up to fifteen recitation or lecture hours per week, not including those of Military Drill. The abuse to which a system of perfectly free electives is liable is avoided by the requirement of a certain number of studies which are intended to secure some completeness and symmetry of discipline, while the number of electives permitted gives room for the development of special talents and the following out of individual predilections. The electives are offered in such a way as to permit extended study of any subject or group of subjects of which the student may

wish to make a specialty. For example, Greek, Latin, English and Mathematics may be pursued through most of the time during the four years; French and German for three years; Physical Science, History, and the Social, Intellectual and Moral Sciences, from two to three years.

The electives embrace studies in Greek and Latin; French and German, including studies in Comparative Literature; the higher Mathematics, including Calculus and the New Geometry; History; Political and Social Science; English Literature; Chemistry, theoretical and applied, with Laboratory work; Geology; Botany; Zoology; Biology; Anthropology; Metaphysics; the History of Philosophy; the Theory of Fine Art.

Other subjects, in which classes are likely to be small, like Anglo-Saxon and Italian, will be offered occasionally, at such intervals as to give all students an opportunity to take them at some time during their college course.

II. Candidates for the degree of Ph. B. will have the same required courses and the same electives as candidates for the degree of A. B., except that, omitting Greek, they will begin the study of French and German one year earlier and will select in the second year from the more advanced electives.

III. Persons who may desire to take a short academic course preparatory to the study of medicine may take the first two years of the course leading to the degree of Ph. B., with any of the electives of the entire department for which they have the requisite preparation.

IV. Students in any of the other departments may, by special permission of the Faculty, take a limited number of electives from the Engineering and Chemical Departments.

V. It is assumed that the choice of electives will be made by the student with reference to some clear, deliberate purpose, and as the result of consultation with members of the Faculty. In all cases the natural sequence of studies must be observed. The Faculty reserve the right to exclude a student from any course for which his previous studies have not properly prepared him.

The studies pursued and taught in the Classical department are divided into seven sections:

1. Languages.
2. Mathematics.
3. Natural Science.
4. History.
5. Rhetoric and English Literature.
6. Social and Political Science.
7. Moral and Intellectual Philosophy.

REQUIRED COURSES*

FRESHMAN YEAR

Greek 1, four hours a week,
Latin 1, four hours,
English 1, two hours,
Mathematics 1, five hours.

Natural Science 1, one hour,
Military Instruction, one hour,
Military Drill, two hours,

SOPHOMORE YEAR

French 1, three hours,
or
German 1, three hours,
English 2, four hours,

History 1, four hours,
Military Instruction, one hour,
Military Drill, two hours.

JUNIOR YEAR

Philosophy 1, two hours,
Political Science 1, two hours,

Military Instruction, one hour,
Military Drill, two hours.

All other courses of instruction, except those specified as *required*, are open for election to Sophomores, Juniors and Seniors. No student, however, will be allowed to enter a course when in the opinion of the instructor his previous studies have not properly prepared him for it.

The requirement of Military instruction has recently been extended so as to include Seniors.

*These requirements are applicable primarily to students who are candidates for the A. B. degree. For their relation to candidates for the Ph. B. degree, see page 48.

DEPARTMENT OF ENGINEERING

FACULTY

MATTHEW H. BUCKHAM, D. D., President, *Political Science*.
VOLNEY G. BARBOUR, Ph. B., C. E., *Bridge Construction and Mechanics, and Dean of Faculty*.
GEORGE H. PERKINS, Ph. D., *Natural History*.
JOSIAH W. VOTEY, C. E., *Civil Engineering*.
LEWIS J. HUFF, *German*.
WILLIAM C KITCHIN, Ph. D., *French*.
HARRY A. STORRS, C. E., *Electrical Engineering*.
ARTHUR W. AYER, B. S., *Mechanical Engineering*.
NATHAN F. MERRILL, Ph. D., *Chemistry*.
HORATIO LOOMIS, Sc. D., *Mineralogy*.
ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.
FREDERICK TUPPER, JR., Ph. D., *English Language and Literature*.
ALLISON W. SLOCUM, A. M., *Physics*.
CAPT. HERBERT E. TUTHERLY, A. M., *Military Tactics*.
JAMES EATON, *Shop Work*.

CIVIL ENGINEERING

Instruction is given by means of lectures, recitations and work in the field and drawing-room. Technical essays are required at frequent intervals on topics connected with the various subjects as they are taken up. Excursions will be made by the classes to engineering works and work-shops for the study of details and methods of construction.

The subjects pursued comprise :

Mathematics, including algebra, geometry, plane and spherical trigonometry, analytical geometry, and the elements of differential and integral calculus ; *General Chemistry, Botany, Astronomy, Physics, Geology, Mineralogy, French, German, Political Economy and English*.

Mechanics, including analytical and graphical determination of stresses in the various kinds of roof and bridge trusses, of the thrust and stability of arches and retaining walls, and of the flow of water in pipes and open channels. For the field work in hydraulics the department is equipped with triangular and rectangular weirs, floats and current meters, which are used by the students in determining the flow of streams.

Drawing, embracing general projection drawing, isometric, perspective, and topographical drawing, shading and coloring, spherical projections and map drawing, plans of surveys, ornamentation and lettering, and the detail and working drawings of structures in wood, iron and stone. This work is carried on throughout the entire four years.

Engineering Construction, including the general properties of building material, as stone, cements, mortar, brick, wood and the metals, the construction of foundations in water and on land, and of superstructures and tunnels, of railroads, canals, water works, drainage and sewerage works, and the improvement of harbors and rivers. In connection with the study of materials, tests of the strength of cements, wood, stone, iron and steel are made. For this work the department has a 2,000 pound Riehle cement tester, a 50,000 pound Riehle general testing machine, with a Henning & Marshall electric micrometer, and a 200,000 pound Olsen automatic and autographic machine, fitted with a long transverse bed for beam testing. The facilities for experimental investigations have been largely increased by the recent construction of a new laboratory for this work.

Surveying, both theory and practice. The theory of instruments, and all the operations of surveying, laying out work, and computing, are explained in detail. The Summer School of surveying affords abundant opportunity for becoming familiar, by actual work in the field, with the methods of work and the use and adjustment of the instruments.

Highway Engineering. The general principles of the location and building of country roads and city streets are first treated, fol-

lowed by the construction in detail of Macadam and Telford roads and the various forms of street pavements. Visits are made to quarries, stone crushing plants, and roads in process of construction. The engineering laboratory has a complete equipment for testing road material.

Sanitary Engineering, including the subject of sewerage, sewage disposal, water supply, the plumbing, heating and ventilation of buildings.

Attention is also given to the preparation of *Specifications* and *Contracts*.

In bridge work the theory of stresses, and the details of construction of the various classes of bridges are taken up. Drawings and blue prints of recent constructions from leading bridge companies are used to illustrate modern practice in this work.

The Library and Reading Room are well furnished with engineering literature, the reading room being supplied with many of the American and foreign engineering periodicals.

The special studies of the department may be taken as a graduate course, occupying two years. Young men who are so situated as to be unable to take full work, but who would be glad to receive instruction in special branches, may, by permission of the President, and on giving evidence of sufficient preparation, join the classes in those studies, but they cannot be candidates for a degree.

SUMMER SCHOOL OF SURVEYING

The Field Work in surveying is carried on mainly at the Summer School of Surveying. This school is located each year near one of the large bays of Lake Champlain and the session occupies one month of the summer vacation. Attendance upon this course is required of the students in Civil Engineering in the Sophomore and Junior classes, and permission to attend may be granted to students from any other class or department. Any young man not a member of the University, if properly fitted for the work, will be admitted to the school upon application.

For any member of the University there is a fee of five dollars for incidental expenses, and for any one not a member, in addition to this, a tuition fee of twenty dollars.

Text-books and books of reference.—Searle's and Henck's Field books; Johnson's Surveying; Clarke's Geodesy; Haupt's Topography; Wright's Adjustment of Observation; Merriman's Least Squares; Weisbach's Mechanics of Engineering; Lanza's Mechanics; Rankine's Civil Engineering; Latham's Sanitary Engineering; Fanning's Water Supply; Merriman's Hydraulics; Smith's Hydraulics; Burr's Elasticity and Resistance of Materials; Thurston's Materials of Engineering; Johnson's Modern Framed Structures.

FRESHMAN YEAR

FIRST HALF-YEAR. *Mathematics*.—Geometry and Algebra, five hours. *Chemistry*.—Lectures, four hours. *Drawing*.—Elementary Projections and Descriptive Geometry, five hours. *English*.—Rhetoric, Composition, two hours. *Hygiene*.—Lectures, one hour.

SECOND HALF-YEAR. *Mathematics*.—Trigonometry and Surveying, five hours. *Descriptive Geometry and Shades and Shadows*, five hours. *Drawing*.—Topography and Lettering, four hours. *Hygiene*.—Lectures, one hour. *English*.—two hours. *Surveying*.

VACATION

Summer School of Surveying, one month.

SOPHOMORE YEAR

FIRST HALF-YEAR. *Mathematics*.—Analytical Geometry and Calculus, four hours. *Spherical Trigonometry*.—two hours. *Physics*.—four hours. *German*.—three hours. *Drawing*.—Shading and Tinting, and Perspective, four hours. *Surveying*.

SECOND HALF-YEAR. *Mathematics*.—Calculus, four hours. *Astronomy*.—two hours. *Physics*.—four hours. *German*.—three hours. *Drawing*.—Isometrical Projections and Spherical Projections, four hours. *Surveying*.

VACATION

Summer School of Surveying, one month.

JUNIOR YEAR

FIRST HALF-YEAR. *Mathematics*.—Integral Calculus, three hours. *Mechanics*.—Forces and Motion; Stresses in Bridge and Roof Trusses, five hours. *Drawing*.—Mapping of Surveys, three hours. *Mineralogy*.—three hours. *Engineering Construction*.—Materials of Construction, two hours.

SECOND HALF-YEAR. *Mechanics*.—Stresses in Bridge and Roof Trusses; Strength of Materials; Theory of Flexure, five hours. *Engineering Construction*.—Materials of Construction, two hours. *Railroad Engineering*.—Lectures and Field Work, three hours. *Geology*.—three hours. *Drawing*.—Stone Cutting, Structural Drawing, three hours.

SENIOR YEAR

FIRST HALF-YEAR. *Mechanics*.—Hydrostatics and Hydraulics, four hours. *Graphical Statics*.—Study of Arches, Domes and Retaining Walls, five hours. *Contracts and Specifications*.—two hours. *Engineering Construction*.—Foundations, Railroads, Canals, River and Harbor works, two hours. *Drawing*.—Detail Drawing and Designing, two hours.

SECOND HALF-YEAR. *Highway Engineering*.—Roads, Streets and Pavements, three hours. *Sanitary Engineering*.—Water supply, Sewerage, Plumbing, Heating and Ventilating, three hours. *Mechanics*.—Advanced Bridge Work, three hours. *Mathematics*.—Least Squares, Higher Surveying and Practical Astronomy, three hours. *Theses*.

MECHANICAL ENGINEERING

The instruction in Mechanical Engineering is intended to furnish the student with such training as will enable him to solve most advantageously the problems which arise in the practice of his pro-

fession, namely, those relating to the generation and transmission of power, and its application to the arts. The fact is recognized that such training cannot be gained in the recitation and lecture rooms alone, and in consequence a considerable portion of the student's time is spent in the drawing-room and workshops, and in the engineering laboratory.

No strictly professional subjects are taken up in the Freshman year, but much time is devoted to mathematics and drawing, these being considered the most important factors in the work of the following years. The Sophomore year is devoted to the more elementary subjects of the profession, such as elementary combinations in machines, gear-tooth construction, and the mechanism of machine tools. The Junior year is devoted almost wholly to steam engineering, and the Senior year to machine design and to advanced and special lines of professional work. Outside the department, instruction is given in German, the higher mathematics, physics and general mechanics.

Shop Equipment. The carpenter and pattern shop contains, in addition to twelve carpenter benches, and a full line of tools for manual work, six wood-turning lathes, an eighteen inch pattern-maker's lathe, circular saw, and scroll saw. The foundry is supplied with a cupola furnace, brass furnace, core-oven and accommodations for six students in moulding. The forge shop contains eight forges and anvils, a hand drill, and all the hand tools necessary for instruction in this branch. The machine shop is equipped with filing and chipping benches, four engine lathes, two hand lathes, a planer, a shaping machine, two upright drills, a milling machine, a grinding machine, and emery wheels.

Mechanical Engineering Laboratory. A twenty-five horse-power Harris-Corliss engine, which also provides power for the shops, and a fifty horse-power tubular boiler are available for engine and boiler tests. A surface condenser and air pump have recently been added, and are used in connection with the engine during tests. The laboratory contains also a friction brake, a pair of Crosby indicators, a

planimeter, several calorimeters, a steam-gauge tester, and numerous minor pieces of apparatus used in connection with these.

FRESHMAN YEAR

FIRST HALF-YEAR. *Mathematics*.—Algebra and Solid Geometry, five hours. *Chemistry*.—Lectures, four hours. *Drawing*.—Elementary Projection and Descriptive Geometry, five hours.—*English*.—Rhetoric and Composition, two hours. *Hygiene*.—Lectures, one hour.

SECOND HALF-YEAR. *Mathematics*.—Trigonometry and Surveying, five hours. *Drawing*.—Descriptive Geometry, five hours. *Chemistry*.—Laboratory, two hours. *English*.—two hours.—*Hygiene*.—one hour. *Shopwork*.—Carpentry, two hours.

SOPHOMORE YEAR

FIRST HALF-YEAR. *Mathematics*.—Analytical Geometry, four hours. *Mechanical Engineering*.—Elementary Mechanism, two hours. *Drawing*.—Details of Machines, and Making of Blue Prints, one hour. *Physics*.—Lectures, four hours. *Elementary German*.—three hours. *Shopwork*.—Wood-turning and Pattern Making, two hours.

SECOND HALF-YEAR. *Mathematics*.—Calculus, four hours. *Mechanical Engineering*.—Mechanism, Gear Teeth and Machine Tools, three hours. *Drawing*.—Details of Machines, and Construction of Gear Teeth, two hours. *Physics*.—Heat and Electricity, lectures, three hours. *German*.—three hours.

JUNIOR YEAR

FIRST HALF-YEAR. *Mathematics*.—Integral Calculus, three hours. *Mechanical Engineering*.—Valve Gears and Thermodynamics, four hours. *Mechanics*.—General Statics, Roof and Bridge Trusses, five hours. *Drawing*.—Analysis of Valve Gears, and Steam Engine Details, two hours. *Shopwork*.—Forging, three hours.

SECOND HALF-YEAR. *Mathematics*.—Spherical Trigonometry and Astronomy, three hours. *Mechanical Engineering*.—Thermodynamics, Boilers, Pumps and Injectors, four hours. *Mechanics*.—Strength of Materials, five hours. *Mechanical Engineering Laboratory*.—Engine and Calorimeter Tests, two hours. *Shopwork*.—Chipping, Filing, and Lathe Work, three hours.

SENIOR YEAR

FIRST HALF-YEAR. *Mechanical Engineering*.—Dynamics of Machines, three hours; Machine Design, four hours. *Hydraulics*.—four hours. *Materials of Construction*.—two hours. *Shopwork*.—Machine Shop, three hours.

SECOND HALF-YEAR. *Mechanical Engineering*.—Motors and the Transmission of Power, three hours. *Mechanical Engineering Laboratory*.—Boiler, Pump and Power Tests, and Strength of Materials, two hours. *Shopwork*.—Machine Shop, Moulding and Founding, three hours. *Theses*.

NOTE.—In the above schedule the "hour" as applied to Drawing, Shopwork, and Laboratory is actually of two hours' duration.

ELECTRICAL ENGINEERING

A descriptive statement of the Electrical Engineering Course and of the equipment of the electrical laboratory may be found in the bulletin soon to be issued by the Engineering Department.

Broadly it may be stated that it is the aim of this course to provide the student with a substantial working knowledge of the fundamental principles underlying all engineering practice, and especially to instruct him as thoroughly as time will permit in the theory and uses of electrical instruments and machines.

Preparatory to the technical subjects are the courses in Mathematics, Drawing and Chemistry; then follow Mechanics, Physics, Thermodynamics, etc.; and finally, Steam Engineering, Hydraulics,

Engineering Construction and Electrical Engineering. About one-half the student's time during Junior and Senior years is devoted to the several subjects included under Electrical Engineering, among which are Dynamo Theory and Practice, Electric Lighting and Transmission of Power, Electric Railways, etc.

Throughout the course the lecture-room instruction is supplemented by practical work in the shops and laboratories. The electrical laboratory is well equipped with dynamos and motors, arc and incandescent lamps, and instruments of the most approved type for electrical measurements.

FRESHMAN YEAR

FIRST HALF-YEAR. *Mathematics*.—Algebra and Solid Geometry, five hours. *Chemistry*.—Lectures, four hours. *Drawing*.—Elementary Projections and Descriptive Geometry, five hours. *English*.—Rhetoric and Composition, two hours. *Hygiene*.—Lectures, one hour.

SECOND HALF-YEAR. *Mathematics*.—Higher Algebra, Trigonometry and Surveying, five hours. *Drawing*.—Descriptive Geometry, five hours. *Chemistry*.—Laboratory, two hours. *English*.—Rhetoric and Composition, two hours. *Hygiene*.—Lectures, one hour. *Shop-work*.—Carpentry, two hours; or *Surveying*.—Use of instruments, two hours.

SOPHOMORE YEAR

FIRST HALF-YEAR. *Mechanical Engineering*.—Elementary mechanism, two hours. *Mathematics*.—Analytical Geometry, four hours. *Physics*.—Dynamics, Acoustics and Optics, four hours. *German*.—Three hours. *Shop-work*.—Wood-turning, two hours.

SECOND HALF-YEAR. *Mechanism*.—Gear Teeth and Machine Tools, three hours. *Mathematics*.—Differential Calculus, four hours. *Physics*.—Heat and Electricity, three hours. *German*.—Three hours. *Physical Laboratory*.—Two hours. *English*.—Technical Essays, one hour. *Drawing*.—Two hours.

JUNIOR YEAR

FIRST HALF-YEAR. *Electrical Engineering*.—Theory and Practice of the Dynamo, four hours. *Mechanics*.—General Statics and Dynamics, five hours. *Mathematics*.—Integral Calculus, three hours. *German*.—Technical Reading, two hours; or *Engineering Construction*.—Materials of Construction, two hours. *Electrical Laboratory*.—Three hours.

SECOND HALF-YEAR. *Electrical Engineering*.—Theory of the Dynamo, three hours; and Dynamo Practice and Design, three hours. *Mechanics*.—Roof and Bridge Trusses, three hours; or *Railroad Surveying*.—Three hours. *Technical Essays*.—One hour. *Electrical Laboratory*.—Three hours. *Engineering Construction*.—Materials of Construction, two hours. *Shop-work*.—Forging, Chipping and Filing, two hours.

SENIOR YEAR

FIRST HALF-YEAR. *Electrical Engineering*.—Theory of Alternating Currents, three hours; Electric Lighting and Power Transmission, three hours. *Mechanics*.—Hydraulics, four hours. *Steam Engineering*.—Valve Gears and Thermodynamics, four hours. *Shop-work*.—Machine Tools, two hours. *Electrical Laboratory*.—two hours.

SECOND HALF-YEAR. *Electrical Engineering*.—Theory of the Transformer, two hours; Electric Railways, Electrometallurgy and Specifications, three hours. *Steam Engineering*.—Engines, Boilers and Pumps, four hours. *Mechanical Laboratory*.—Engine and Boiler Tests, two hours. *Electrical Laboratory and Thesis Work*.—Four hours.

DEPARTMENT OF CHEMISTRY

FACULTY

MATTHEW H. BUCKHAM, D. D., President. *Political and Social Philosophy.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

HORATIO LOOMIS, Sc. D., *Mineralogy.*

GEORGE H. PERKINS, Ph. D., *Natural History.*

HENRY A. P. TORREY, A. M., *Logic, Ethics and Theism.*

SAMUEL F. EMERSON, Ph. D., *History.*

LEWIS J. HUFF, *German.*

WILLIAM C KITCHIN, Ph. D., *French.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics.*

FREDERICK TUPPER, Ph. D., *English Language and Literature.*

ALLISON WING SLOCUM, A. M., *Mathematics and Physics.*

HARRY A. STORRS, C. E., *Electrical Engineering, Drawing.*

JOHN B. STEARNS, B. S., *Chemistry.*

CAPT. HERBERT E. TUTHERLY, A. M., *Military Science and Tactics.*

In this Department, the student, after attending about sixty lectures and recitations in General Chemistry, enters the laboratories where he pursues graded and systematic work, beginning with a schedule of experiments illustrating fundamental principles and cultivating familiarity with the common elements and their compounds. From the outset quantitative methods are followed, as far as practicable.

Qualitative Analysis is next studied. The work includes the use of the spectroscope and qualitative examination of commercial products. Lectures and recitations continue through the course.

After the completion of Qualitative Analysis, Quantitative Analysis is begun, the student proceeding through the simpler determinations to more difficult analyses. The course embraces gravimetric

and volumetric methods with applications to analysis of commercial products. Occasionally the students meet together and present statements of work done in the laboratory with discussion of methods, etc. In this way, each student may derive benefit from the work done in the laboratory by the entire class.

In the Junior or Senior year Organic Chemistry is taken up, both in the class-room and in the laboratory. This course involves the preparation of organic compounds and their analysis. Students of ability will be encouraged to undertake original investigations under the special supervision of the head instructor.

Lectures are given upon Industrial processes and these lectures are occasionally supplemented with excursions to manufacturing establishments. In the third year facilities are offered, and instruction is given, in Crystallography, Mineralogy, and Assaying of Ores by both fire assay and wet assay. A short course of lectures on the History of Chemistry is given.

During the Senior year instruction is given in those parts of mechanical engineering which have a direct bearing upon the chemical industries. This work includes lectures upon prime movers, boilers and pumps, the elements of machines, and the proportioning of shafting, pulleys, and belts, together with some actual practice in the management of boilers and steam engines.

BOOKS OF REFERENCE IN CHEMISTRY.—Graham-Otto's *Lehrbuch der anorganischen Chemie*; Gmelin-Kraut's *anorganische Chemie*; Allen's *Commercial Analysis*; Battershall's *Food Adulteration*; Percy's *Metallurgy*; Eggleston's *Metallurgy*; Lunge's *Sulphuric Acid and Alkali, Coal Tar and Ammonia Industries*; Fresenius's *Quantitative Analysis*; Fresenius's *Qualitative Analysis*; Sutton's *Volumetric Analysis*; Roscoe's *Treatise on Chemistry*; Kolbe's *Lehrbuch der organischen Chemie*; Payen's *Precis de Chemie industrielle*; Wagner's *Chemical Technology*; Ostwald's *Solutions*; Ostwald's *Outlines of General Chemistry*; Blyth's *Composition and Analysis of Foods*; Blyth's *Poisons, Effects and Detection*; Crookes's *Select Methods in Chemical Analysis*; Pattison Muir's *Principles of Chemistry*; Men-

deleeff's Principles of Chemistry ; Sadtler's Industrial Organic Chemistry ; Peters's Modern Copper Smelting ; Chemical Technology, Groves & Thorpe ; Examination of Medicinal Chemicals, Hoffmann & Power ; Annalen der Chemie und Pharmacie ; Watt's Dictionary of Chemistry ; Journal of the London Chemical Society ; Zeitschrift fur analytische Chemie ; Berichte der deutschen chemischen Gesellschaft ; American Journal of Chemistry ; Journal of the Society of Chemical Industry ; Chemical News.

FRESHMAN YEAR

FIRST HALF-YEAR. *Required Studies*—Chemistry Lectures, four hours. Mathematics, five hours. Drawing, four hours. English, one hour. French, four hours.

SECOND HALF-YEAR. *Required Studies*—Laboratory, six to eight hours. Mathematics, five hours. English, one hour. French, four hours.

SOPHOMORE YEAR

FIRST HALF-YEAR. *Required Studies*—Laboratory, ten to fifteen hours. Physics, four hours. German, four hours. English, two hours. *Elective Studies*—Analytics, three hours. History, four hours. French, four hours.

SECOND HALF-YEAR. *Required Studies*—Laboratory, fifteen hours. German, four hours. English, two hours. *Elective Studies*—Mathematics, History or French as in first half-year.

JUNIOR YEAR

FIRST HALF-YEAR. *Required Studies*—Laboratory, including Mineralogy and Blow-pipe Determinations and Assaying, fifteen to eighteen hours. Stoichiometry, two hours. English, two hours. Physiology, one hour. *Elective Studies*—German, three hours. Calculus, two hours.

SECOND HALF-YEAR. *Required Studies*—Laboratory, fifteen to eighteen hours. Commercial Organic Analysis, two hours. English,

two hours. Physiology, one hour. *Elective Studies*—German or Calculus as in first half-year.

SENIOR YEAR

FIRST HALF-YEAR. *Required Studies*—Laboratory, fifteen to eighteen hours. Organic Chemistry, lectures, two hours. Machinery and Motors, two hours. English, one hour.

SECOND HALF-YEAR. *Required Studies*—Laboratory. Organic Chemistry, lectures, two hours. Industrial Chemistry. History of Chemistry. Geology, three hours. Theses.

NOTE. The lectures in Organic Chemistry and in Industrial Chemistry are usually given to Juniors and Seniors together, in alternate years.

Certain of the studies of the Senior Year in the Classical department may be optional with a corresponding amount of laboratory work throughout this year.

All the courses in Chemistry are open as electives to such students in the Classical and Literary-Scientific departments as are qualified to pursue them.

It is desirable that applicants for admission to full standing in the Chemical department as candidates for its degree should have had the regular classical course—the usual preparation for college—at some school whose certificates are recognized by this University. In case of deficiency in Latin or Greek or in both of those languages in the preparatory course, the applicant may present himself for examination in French or German or in both; and satisfactory attainments in the elements of these languages will be accepted as substitution for Greek and Latin.

Students showing proper qualifications may be admitted to a special course in Chemistry by permission of the President and of the Professor of the department; but such students cannot receive the degree.

DEPARTMENT OF AGRICULTURE

FACULTY

MATTHEW H. BUCKHAM, D. D., President, *Political and Social Philosophy.*

JOSEPH L. HILLS, B. S., *Agricultural Chemistry.*

GEORGE H. PERKINS, Ph. D., *Natural History.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

LEWIS R. JONES, Ph. B., *Botany.*

FRANK A. RICH, V. S., M. D., *Veterinary Medicine and Stock-Breeding.*

Horticulture and Agriculture.

JOSIAH W. VOTEY, C. E., *Surveying and Road-Making.*

HORATIO LOOMIS, Sc. D., *Mineralogy.*

WILLIAM C KITCHIN, Ph. D., *French.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics.*

LEWIS J. HUFF, *German.*

HARRY A. STORRS, C. E., *Electrical Engineering.*

ARTHUR W. AYER, B. S., *Mechanical Engineering.*

ALLISON W. SLOCUM, A. M., *Mathematics and Physics.*

FREDERICK TUPPER, Jr., Ph. D., *Rhetoric and Elocution.*

HEMAN B. CHITTENDEN, A. M., *Mathematics and English.*

WILLIAM E. SIMPSON, *Dairying.*

CAPT. HERBERT E. TUTHERLY, A. M., *Military Science and Tactics.*

The work of the Agricultural Department is intended to give the student both the theoretical and the practical knowledge necessary to make a success of farming, and at the same time to include enough of mathematics, literature, science and philosophy for a good general education.

Agriculture has a leading place and is studied continuously throughout the course. In the Freshman year, Farm Management, Accounts and Implements are the subjects of discussion. Preparation is made for the more thorough understanding of soils and fertilizers by the study of plant growth and a year's instruction in Chemistry with Laboratory Work. The subject of soils includes their origin, kinds, composition, tillage, drainage and fertilization. This is followed by crops, general and special, their values, uses and methods of cultivation.

Stock Feeding and Breeding are taught by lectures and text book, and abundant opportunity for illustration is found in the stock at the Experiment Station barn, as well as in the records of experiments. Exceptional facilities for instruction in dairying are afforded in connection with the Dairy School. Several of the better styles of separators, churns, butter-workers, milk testers, etc., are in use, and the student becomes familiar with the various systems, and expert in manipulating the apparatus.

Horticulture is taught by lectures and especially by practical work. The study embraces a year's course in market gardening, floriculture, fruit culture, nursery growing, landscape gardening and forestry. A green-house with four rooms is devoted to commercial vegetable and flower growing, and to the investigation of plant diseases. The students are taught the growing of different crops by the most improved methods, and gain valuable experience in seed planting, transplanting, potting, budding and grafting, and other methods of propagation, both in the house and in the field. They are also taught the handling of hot-beds and forcing houses. The orchard has an assortment of large and small fruits, where students can learn the proper methods of pruning and training.

Veterinary Science is a required study during one-half of the course. The student learns first the general structure of domestic animals by lectures, by the examination of charts and museum specimens, and by the dissection of the animals themselves. The physiology of domestic animals is next studied, then the microscopic

structure of the various parts. The common diseases and their remedies are discussed in lectures, and free clinics are held for studying these diseases in the living animals. In connection with the study of contagious diseases, laboratory work is given in bacteriology, covering the preparation of nutrients, the making of pure cultures, etc., and the subjects of inoculation, disinfection and immunity are considered.

Botanical subjects are studied during the last three years of the course. The work upon the structure and classification of the flowering plants prefaces a careful study of the plant cell with the elements of physiological botany. Following this is a study of typical species of the lower plants (cryptogams) with special reference to their structure, function, development and relationship. The elective courses in Physiology of Plants and Advanced Biology offer an opportunity for independent work in any line that the student is prepared to follow to advantage. The instruction in Mycology includes both the laboratory study of the fungi causing plant diseases, and lectures and demonstrations upon the use of fungicides.

The spraying apparatus used in the Experiment Station work, the facilities of the green-house, and a collection of dried and alcoholic specimens furnish ample opportunity for practical work in this line. The botanical laboratory is supplied with simple and compound microscopes and the necessary chemicals and accessories. The herbariums of the University and Experiment Station are open to students in systematic botany.

The work in mathematics includes Solid Geometry, Advanced Algebra, Trigonometry, Land Surveying and Road Making.

More or less extended courses are taken in Chemistry, Entomology, Mineralogy and Geology.

Electives. During the Sophomore year students may elect Mathematics or Modern Languages, and during the last two years students are allowed to select studies from any of the departments of the University.

The Library is well supplied with standard works in the various

departments of Agriculture, and the leading agricultural journals are found in the reading room. Students also have the advantage of the presence of the Agricultural Experiment Station.

Students in the Agricultural department are subject to the same regulations and requirements as other students, except that residents of Vermont are not required to pay tuition. There is an opportunity for several students to defray a part of their expenses by work.

SHORT COURSE IN AGRICULTURE

Students who do not wish to take the full four years' course may take a special course of one year, or of two years, selecting such studies as they are fitted to pursue. Such students may receive Certificates of Proficiency, but are not candidates for a degree.

BOOKS OF REFERENCE

Stockbridge's Rocks and Soils; Stewart's Feeding Animals; Armsby's Manual of Cattle Feeding; Miles' Stock Breeding; Beal's Grasses of North America; Storer's Agriculture; Cattle and Dairy Farming; Wiley's Principles and Practice of Agricultural Analysis; Griffith's Treatise on Manures; Wyatt's Phosphates of America; Flint's Grasses and Forage Plants; Miles' Land Drainage.

Gray's Lessons and Manual; Gray's Structural Botany; Goodale's Physiological Botany; Bessey's Botany; Sach's Physiology of Plants; Vine's Physiology of Plants; Mueller's Fertilization of Flowers; Parker's Elements of Biology; Bennett and Murray's Cryptogamic Botany; Strasberger's Practical Botany; De Bary's Morphology and Biology of the Fungi; Plowright's British Uredineæ and Ustilagineæ; Ellis and Everhart's N. A. Pyrenomycetes, etc.

Henderson's Gardening for Profit; Thomas' Fruit Culturist; Long's Landscape Gardening; Bailey's Horticulturists' Rule Book; Fuller's Forestry.

Chaveau's Anatomy; Strangeway's Veterinary Anatomy; Klein's Elements of Histology; Linsley's and Frankel's Bacteriology; Billings' Animal Diseases and Public Health; Diseases of the Horse; Comstock's Introduction to Entomology; Packard's Guide to the Study of Insects; Harris's Insects Injurious to Vegetation; Weed's Insects and Insecticides; Journal of Royal Agricultural Society; Experiment Station Record; Reports and Bulletins of Experiment Stations.

FRESHMAN YEAR

FIRST HALF-YEAR. *Agriculture*—Farm Management; Farm Accounts, one hour. *Veterinary Science*—Comparative Anatomy of Domestic Animals, two hours. *Mathematics*—Geometry and Algebra, five hours. *Chemistry*—Lectures, four hours. *English*—Four hours. *Hygiene*—Lectures, one hour.

SECOND HALF-YEAR. *Agriculture*—Farm Implements and Hand Tools, one hour. *Veterinary Science*—Comparative Physiology of Domestic Animals, three hours. *Mathematics*—Algebra and Trigonometry, five hours. *Chemistry*—Laboratory, four hours. *English*—Four hours. *Hygiene*—One hour.

SOPHOMORE YEAR

FIRST HALF-YEAR. *Agriculture*—Soils, Tillage and Drainage, Fertilizers, five hours. *Botany*—three hours. *Veterinary Science*—Histology, two hours. *English*—Three hours. *Electives*—Mathematics, French or German.

SECOND HALF-YEAR. *Agriculture*—Forage and Root Crops; Grains and Grasses; Special Crops, four hours.—*Botany*—Two hours. *Entomology*—Two hours. *Surveying, or Road Making*, two hours. *English*, three hours. *Electives*—Mathematics, French or German.

JUNIOR YEAR

FIRST HALF-YEAR. *Agriculture*—Stock Feeding, Dairying, four hours. *Horticulture*, three hours. *Biology*, three hours. *English*,

three hours. *Electives*—Physics, Mechanical Engineering, Shop Work, Logic, History, French or German.

SECOND HALF-YEAR. *Agriculture*—Breeds of Live Stock; Stock Breeding, four hours. *Horticulture*, three hours. *Biology*, three hours. *English*, three hours. *Electives*—Physiology. Mechanical Engineering, Shop Work, History, Political Economy, French or German.

SENIOR YEAR

FIRST HALF-YEAR. *Agriculture*—Experiment Station Methods and Research, two hours. *Bacteriology*—Diseases of Animals, three hours. *Mineralogy*, three hours. *English*—two hours. *Electives*—Mechanical Engineering, Shop Work, Electrical Engineering, Political Science, Anthropology, French or German, Road Making.

SECOND HALF-YEAR. *Agriculture*—Mycology, three hours. *Geology*, three hours. *English*, two hours. *Original Investigation for Thesis*. *Electives*—Mechanical Engineering, Shop Work, Electrical Engineering, Photography, Political Science, Sanitary Engineering, French or German.

DAIRY SCHOOL

Among the recent additions to the equipment of the Agricultural Department is a creamery where during the past three years has been held a four weeks' Dairy School. This is designed to teach in a practical manner the manufacture of butter with the latest and most approved apparatus. The Dairy School will be repeated this winter. The course will be four weeks long, beginning January 14 and ending February 9, 1895. At the time this catalogue goes to press (over a month before the opening of the school) fifty students, being the entire number that we can accommodate, have been registered. In addition to the regular students, several hundred visitors usually witness operations and inspect apparatus.

STUDENTS IN THE DAIRY SCHOOL

Daniel Adams	<i>East Peacham</i>
G. H. Allbee	<i>Milton</i>
W. E. Allen	<i>Milton</i>
John G. Bedard	<i>St. Albans</i>
Arthur P. Bigelow	<i>Stowe</i>
E. J. Brittell	<i>South Starksboro</i>
Heman J. Bugbee	<i>Vershire</i>
William H. Bushnell	<i>Vergennes</i>
Charles H. Caswell	<i>Essex Center</i>
Alvin Cate	<i>Plainfield</i>
Herman Chamberlin	<i>Wells River</i>
F. W. Coburn	<i>Plainfield</i>
Silas Cochran	<i>St. Albans</i>
W. F. Cunningham	<i>St. Albans</i>
Edward Curley	<i>St. Albans</i>
A. H. Day	<i>Sheffield</i>
D. L. Dodds	<i>North Hero</i>
J. Fred Doescher	<i>Brattleboro</i>
W. G. Fassett	<i>Enosburgh</i>
Angus Gale	<i>Stowe</i>
F. L. Giddings	<i>Hubbardton</i>
W. A. Gilchrist	<i>East Ryegate</i>
G. H. Goothe	<i>Jericho</i>
E. W. Gordon	<i>Grand Isle</i>
Charles Goss	<i>East Barnet</i>
J. W. Green	<i>Fairfax</i>
C. A. Greenleaf	<i>Newbury</i>
William W. Holbrook	<i>Townshend</i>
Park Holland	<i>Townshend</i>
C. W. Hulett	<i>Rochester</i>
Edson Irish	<i>North Underhill</i>
A. E. Johnson	<i>West Newbury</i>

C. H. Livingston	<i>South Peacham</i>
J. E. Lord	<i>Pompanoosuc</i>
G. B. Meigs	<i>St. Albans</i>
G. W. Moore	<i>North Pomfret</i>
Harley W. Nelson	<i>East Ryegate</i>
G. R. Osgood	<i>Bethel</i>
Herman Osgood	<i>Brookline</i>
Harry M. Pearl	<i>Grand Isle</i>
C. R. Prime	<i>Brandon</i>
M. W. Reynolds	<i>Georgia Plain</i>
A. M. Rice	<i>North Cambridge</i>
George Rowe	<i>West Barnet</i>
F. L. Russell	<i>Shrewsbury</i>
E. H. Sargent	<i>East Corinth</i>
E. M. Slack	<i>Woodstock</i>
R. S. Warner	<i>Johnson</i>
H. S. Wheeler	<i>Waitsfield</i>
David Wilson	<i>West Glover</i>

COURSE FOR STUDENTS OF MEDICINE

Arrangements are made between the Academic and Medical departments by which a candidate for the degree of A. B. or Ph. B. may count certain Medical studies of the first year as equivalents for part of his last year's Academical studies, and in this way may abridge by one year the time necessary for taking his degrees in both departments.

In response to a demand for a short course preparatory to the study of medicine, for the benefit of those who are unable to take a full college course, the following schedule, including with some of the studies of a general course the sciences which have special applications in medicine, is proposed, subject to modifications to suit individual needs and preferences.

FIRST YEAR

Mathematics, five hours a week ; Chemistry, four hours ; Biology, three hours ; English, two hours ; French, German, or Latin, four hours.

SECOND YEAR

Physics, three hours ; Comparative Anatomy and Physiology, three hours ; Biology, three hours ; English, three hours ; History, two hours ; French, German or Latin, three hours.

Students who successfully pursue this course may receive a Certificate of Proficiency, but will not be entitled to a degree.

MILITARY INSTRUCTION

In accordance with an Act of Congress, an officer of the United States Army is stationed at the University as Professor of Military Science and Tactics, and all male students, except those in the Medical department, are required to take part in military drill and instruction three hours each week. A neat, inexpensive uniform is worn during drill.

The drills take place twice a week and are so conducted as to afford healthful exercise, which, while not severe, tends to develop an erect figure and carriage. A building 150 by 70 feet is used as an armory and gymnasium, and a course of military gymnastics is combined with the drills. The military discipline, though enforced only during the hours of drill, is designed to develop soldierly honor, and those ideas of promptness, order and obedience to lawful authority which are applicable to all callings in life.

The theoretical instruction is given to each class once a week by recitations and lectures. It embraces besides the Drill Regulations of

the U. S. Army, the elementary principles which govern the art of war, such as officers of a volunteer army should be conversant with upon first being called into the field.

Upon the graduation of each class, the names of those students who have shown especial aptitude for military service are reported to the United States War Department and to the Adjutant General of the State, and the names of the three most distinguished students in Military Science and Tactics are inserted in the United States Register.

MILITARY ORGANIZATION

The students are organized into a regiment of infantry, consisting of two battalions (four companies and a band), officered by the Senior Class, the sergeants being taken from the Junior Class, and the corporals from the Sophomore Class.

The following is the Roster of officers and non-commissioned officers for the present year :

FIELD

Lieut.-Colonel, E. G. Randall.
Majors, P. J. Ross, M. S. Allen.

STAFF

Adjutant, W. P. Marsh.
Quartermaster, C. G. Andrews.

NON-COMMISSIONED STAFF

Sergeant-Major, T. H. Canfield, Jr.
Q. M. Sergeant, — — — — —

CAPTAINS

H. C. Shurtleff
N. B. Webber
J. H. Blodgett

C. G. Winslow
R. N. Woodward

LIEUTENANTS

M. M. Hutchinson	W. J. B. McFarland
L. M. Saunders	Leigh Hunt
Hugh Davis,	J. J. Wilson
W. F. Daggett	B. H. Hill
George Peterson	T. E. Hopkins
K. A. Andrén	J. F. Pratt
F. T. Sharp	G. Z. Thompson
A. P. Lowell	G. H. Dalrymple

FIRST SERGEANTS

Robert Hazen	George S. Miller
J. T. Stearns	F. P. Bingham

SERGEANTS

N. D. Blake	S. F. Weston
H. DeW. Giddings	C. C. Taylor
F. R. Wright	A. B. Cutter
C. H. Hagar .	J. E. Colburn
J. H. Buffum	

CORPORALS

F. B. Willard	F. R. Farrington
C. F. Clark	W. W. Murray
R. M. Walker	G. M. Hogan
H. F. Hyde	H. W. Clark
G. C. Hubbard	L. B. Hayward
A. E. Lewis	G. E. P. Smith

REGULATIONS

ABSENCES

1. The Absences of students shall be in charge of a Committee of the Faculty.

2. Students in all departments of the University, with the exception of those in the Medical department, are required to attend Prayers in the Chapel every week-day morning.

3. These exercises in the Chapel shall take place between the hours of the first and second recitations.

4. Students should be in their seats when the bell ceases to Tardiness at prayers will be treated as absence.

5. A student's unexcused absences from Chapel exercises must not exceed ten per cent. of the whole number of such exercises held during the half-year. Such unexcused absences shall be treated as those specified in §§ 6 and 8.

6. A student whose unexcused absences during a half-year exceed ten per cent. of the required exercises in any study shall be placed on probation, and his parent or guardian shall be notified of his delinquency. A student who is placed on probation shall not be allowed to take part in the work of any students' organization which represents the University, such as the Base Ball Nine, the Glee Club, etc., nor shall he attend the convention of any secret society or other organization meeting out of town.

7. No student may be absent from Burlington, when such absence involves failure to attend any required exercise, without the previous permission of the Absence Committee, and leave of absence for the purpose of attending the exercises of any students' organization must also be obtained beforehand from the Committee.

8. A student who, after being put on probation, shall incur further unexcused absence from required exercises in the same study

in which he has been delinquent, shall be suspended on vote of the Absence Committee for a period of not less than ten days. While under suspension a student, if he live away from Burlington, shall be required, in case the Absence Committee so direct, to return to his home. If his home be in Burlington, he shall be required to absent himself from the University grounds.

9. After a Recess, work will be resumed with the first afternoon exercise.

10. For one day before and after a Recess each absence shall count as two.

11. Excuses for absence must be put in writing, dated and signed, and deposited with the Secretary of the Absence Committee. In case of sickness the Committee may require the certificate of a physician.

ATHLETICS

1. No athletic contest shall take place before four o'clock in the afternoon on any day but Saturday.

2. All arrangements or schedules for contests to take place out of Burlington must be submitted for approval to the Athletic Committee.

3. No athletic organization shall be absent for more than three consecutive college days exclusive of Saturday.

4. At least two weeks before an opening contest, the manager of any athletic organization shall submit to the Athletic Committee for its approval a list of candidates for the team.

EXAMINATIONS

At the close of each half-year students are examined in the studies of that half-year. The examinations are written, or oral, or both, at the discretion of the Instructor. A record is kept of the results of these examinations and a transcript of each student's record is sent to his parent or guardian.

Students who fail in the regular examination in any subject will be allowed to take a re-examination in that subject one year from the time of failure.

Students who fail in the re-examination will cease thereupon to be candidates for a degree.

In case of Seniors, all delinquencies up to the close of Junior year, must be made up by the end of the first half of Senior year. Those who fail to make up their delinquencies by that time will cease thereupon to be candidates for a degree.

RELIGIOUS SERVICES

The institution, while not connected with any particular denominational body, and having members of many communions in its Board of Instruction, aims to impress religious truths and obligations upon all students. A Responsive Religious Service is held every morning in the College Chapel, which the students are required to attend.

A flourishing Young Men's Christian Association of students is maintained, and is in close union both in sympathy and co-operative work with the Young Men's Christian Association of the city. The numerous churches of the place give to the students hospitable welcome to their services and activities. A voluntary Bible Class of students is conducted by the President on Sunday afternoons in the College building.

HONOR EXAMINATIONS

FOR SENIORS

For the benefit of Students who wish their names to appear on the Honor List [see below] at graduation in recognition of extra work done by them in some special subject or subjects, special Honor Examinations will be held shortly before Commencement in the following subjects: Greek, Latin, French, German, English, History, Philosophy, Political Science, Mathematics, Biology, Chemistry.

It is required that any student who desires to present himself for this examination shall make written application to the Faculty not

later than November 1st. A candidate before presenting himself for examination must have taken all the regular courses offered in the subject in which he is to be examined. He must further have passed the Sophomore Honor Examination [see below] in that subject, if such examination shall have been held, unless specially excused. A candidate must also show *general* good standing in all his work.

FOR SOPHOMORES

Sophomores who wish their names to appear on the Honor List at Commencement will present themselves for the special Honor Examinations held shortly before the close of the academic year in the following subjects: Greek, Latin, French, German and Mathematics.

It is required that any student who desires to present himself for this examination shall make written application to the Faculty not later than November 1st. A candidate before presenting himself for examination must have taken all the regular courses offered in the subject in which he is to be examined, unless specially excused, and he must have attained a high rank in those courses. This examination shall be open also to Juniors.

The amount and nature of the extra work specially covered by any Honor Examination shall be determined by the instructor who has it in charge. It is required that the student attain a high standard of excellence at the examination.

In place of and as equivalent to an Honor Examination the instructor may, if he pleases, accept a thesis from a student upon some subject which shall have been assigned.

HONOR LIST

There shall be published on the morning of Commencement Day in each year an Honor List containing (1) the names of students who attain grade A in three-fourths* of their work throughout the

*The reckoning shall be made on the basis of the rank report for each half-year.

college course and do not fall below grade B in anything; and (2) the names of students who pass the special Senior Honor Examination offered in any subject. Further, in case a student shall attain grade A in three-fourths of his work and shall not fall below grade B in anything, and in addition shall pass the special Senior Honor Examination offered in any subject, he may be awarded *Double Honors*.

The Honor List shall contain also the names of students who pass the special Sophomore Honor Examination offered in any subject. It shall contain further the names of all from the several classes to whom prizes have been awarded during the year, and the names of those appointed to speak at the Prize Debate and on Commencement Day. To this list may be added the names of those who, for these occasions, have presented essays of unusual merit, but who for any reason have not been appointed to deliver them in public.

The Honor List will be published on the bulletin board, in the Billings Library, and in the annual catalogue, and copies will be printed for sale.

DEGREES

For the degrees of Bachelor of Arts and Bachelor of Philosophy, see page 23.

DEGREES IN SCIENCE.

The Degree of Bachelor of Science *in Civil Engineering*, or in *Electrical Engineering*, or in *Mechanical Engineering*, is conferred upon students in the Engineering department who shall complete the courses of study corresponding respectively to these titles.

The Degree of Bachelor of Science *in Chemistry* is conferred upon the completion of the work required by the department of Chemistry.

The Degree of Civil Engineer may be conferred upon Bachelors of Science of this University, who have taken the Bachelor's degree for

work in Civil Engineering, if they furnish satisfactory evidence that they have pursued further technical studies for at least one year, and in addition have been engaged in professional work in positions of responsibility for another year.

The first of the above requirements may be satisfied by pursuing at the University, under the direction of the Faculty, a prescribed amount of study for a time, not necessarily consecutive, equivalent to a college year. If the candidate does not reside at this University, his course of study must be approved in advance by the Professor of Civil Engineering, and he must prepare a satisfactory thesis on some engineering topic, to be presented, together with a detailed account of his professional work, one month at least before the date of the annual Commencement at which he expects to receive his degree.

The conditions upon which the Degrees of Electrical Engineer and Mechanical Engineer are conferred upon Bachelors of Science of this University, who have taken these degrees for work done in Electrical Engineering and Mechanical Engineering, are analogous in character and in amount to those given for the Degree of Civil Engineer.

In the Agricultural Department the degree is Bachelor of Science *in Agriculture*.

THE DEGREE OF MASTER OF ARTS

1. The degree of Master of Arts may be conferred upon resident graduates of one year's standing of this or any other reputable college, and upon non-resident graduates of two years' standing of this University, who shall pursue a course of liberal study (not professional) subject to the approval of the Faculty.

2. Candidates for the A. M. degree shall be required to present a thesis upon some branch of liberal study pursued since graduation, and to pass an examination before the Faculty.

3. The thesis must be presented at least two months before Commencement, and be approved before the candidate shall be admitted to examination.

4. The thesis must be written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of authors consulted. A copy of the same shall be deposited in the University Library.

5. The examination shall be both written and oral, and copies of examination papers shall be kept on file at the University Library. The examination shall be conducted by a committee of the Faculty, who shall appoint the time and place of examination, decide upon the merits of the candidate, and, if they deem him worthy, recommend him to the Trustees for graduation.

THE DEGREE OF DOCTOR OF PHILOSOPHY

The degree of Doctor of Philosophy is conferred, not for proficiency in miscellaneous studies, nor for the faithful discharge of prescribed work within a given period ; but solely as certification of attested ability for independent investigation.

The object in offering the degree is to encourage original research into some branch of learning and to develop the ability to go to the sources of knowledge in Science, Literature, Art or Philosophy, and to establish upon the authority of the sources some noteworthy truth.

It will be absolutely necessary therefore for the candidate to give evidence of this power by the original treatment of a suitable subject in a written thesis, and by creditably sustaining a critical examination, both written and oral, in one principal and one subsidiary subject.

The degree may be conferred upon resident and non-resident candidates alike, but only after a three years' course of study under competent direction and subject to the approval of the Faculty.

The University offers no regular graduate courses, but members of the Faculty will superintend the work of candidates for the degree who may wish to pursue their studies at the University.

Further requirements are as follows :

1. All college graduates are eligible for the degree, but a ready working knowledge of French and German will be indispensable in all, and of Latin in most cases.

2. The thesis must be presented by the opening of the second half-year in February, and must be approved before the candidate shall be admitted to examination.

3. The thesis must be legibly written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of the authors consulted. A copy of the thesis shall be deposited in the University Library.

4. The fee for the degree is \$25.

Resident candidates will be charged in addition an annual tuition fee of \$100. Non-resident candidates will be charged, for verification of thesis and examination, \$75.

Students who are not candidates for a degree may be awarded Certificates of Proficiency in recognition of the work which they have done.

EXPENSES

The Tuition Fee is \$60 per annum, one-half, \$30, payable at the close of each half-year.

An Annual Fee of \$20 for incidental expenses is charged against all students, one-half payable at the close of each half-year.

This fee is a commutation sum for charges formerly made under several headings, and does not include charges for breakage, damages, etc., which are assessed upon the perpetrators, or, when they are unknown, upon the whole body of students.

Every student upon entering the University is required to pay a Registration Fee of \$10. The payment of this completes the requirements for admission, and is in lieu of the first half-yearly installment of the annual fee.

All students pursuing Laboratory courses are required to pay for material and breakage. This fee varies, but has averaged in the department of Chemistry \$15, of Mineralogy \$5, and of Mechanics \$5, for the half-year.

Each student pays an annual fee of \$2 for supplying the reading room with periodicals.

An ordinary Scholarship cancels the amount of the tuition fee, and a State Scholarship both the tuition and the annual fees. But no student shall have his scholarship credited upon his bills while his col-

lege work is in arrears or while any charges stand against him on the Treasurer's books.

A fee of \$8 is charged for the Diploma given at graduation, and a fee of \$5 for a Certificate of Proficiency.

PAYMENT OF BILLS

Interest at the rate of six per cent. will be charged upon all bills from the day on which they are due. No student will be advanced from class to class, or admitted to graduation until all arrearages are settled to the satisfaction of the Treasurer.

Students temporarily absent from the University are charged as if present. Students entering an advanced class are required to pay one-half of the back tuition, unless from another college.

Room rent in the College Dormitories ranges from \$15 to \$30 per year, according to the location of the room and the number of the occupants. This does not include fuel and lights.

The students' rooms are furnished at the expense of the University. Students need to provide only carpets, mattresses, bed clothing and chamber ware. The beds are furnished with wire mattresses. All rents include care of room by college servants. Fuel and lights are estimated on the supposition that two students occupy one room.

The above rates have reference only to the existing dormitories. With the opening of the session of 1895-6 the new Converse Dormitory will be ready for occupancy, affording accommodations for eighty students. Information respecting rooms, etc., in the new building will be given in a circular to be issued at Commencement.

Good board with room may be obtained in private families at \$3.50 to \$4.50 a week. Other expenses, for clothing, traveling, books, stationery, society and class taxes, etc., vary with the circumstances and habits of the student. Students in the Chemical department pay \$15.50 each half-year for chemicals, gas, etc. Other students, who elect the Chemical Laboratory Course, pay half this fee. Each must pay for his own breakage.

The Central Vermont and Wells River railroads carry students for fare at mileage rates.

BOARDING HALL

There is a Commons Hall on the College grounds at which good table board is furnished to students at cost. The rate of board at present prices of provisions is \$2.50 per week.

SCHOLARSHIPS

Scholarships, affording aid to students of limited means, to the amount of tuition, have been endowed as follows:

The Washburn Scholarships, twelve in number, by Daniel Washburn, M. D., of Stowe, for the benefit of young men studying for the Christian ministry, or, in default of such applicants, of other deserving young men.

The Louisa H. Howard Scholarships, seven in number, by Miss Louisa H. Howard, of Burlington.

The Sarah B. Jacobs Scholarships, seven in number, by Mrs. Sarah B. Jacobs, of Boston, for the benefit of graduates of Brigham Academy, at Bakersfield, Vt.

The Bertman Scholarship, by John Bertman, Esq., of Salem, Mass.

The Green Scholarship, by Horace Green, LL. D., of New York City.

The Fairbanks Scholarship, by the Hon. Erastus Fairbanks, of St. Johnsbury.

The Parker Scholarship, by the Rev. Charles C. Parker, D. D., '41, in memory of himself and son, Charles Edmund Parker, '67.

The Westford Scholarship, by the Hon. L. P. Poland, LL. D., of St. Johnsbury.

The Converse Scholarship, by John H. Converse, '61, of Philadelphia.

The Edwin Wright Marsh Scholarship, endowed by Charles P. Marsh, Esq., '39, of Woodstock, in memory of his son, of the class of 1872, for the benefit, in the first instance, of students from the town of Weathersfield, Vt.

The Charles Munson Marsh Scholarship, by the same, available first for students from Woodstock, if such apply.

The Charles P. Marsh Scholarships, five in number, available, first, for needy and worthy young men or women from the County of Windsor.

The Lizzie S. Converse Scholarship, by bequest of Miss Lizzie S. Converse of Burlington, for poor and deserving students in the Classical department.

The Rich Scholarship, by Charles W. Rich, Esq., '36, of St. Albans.

The Rich Scholarship, by the same, for the benefit, first, of students from the town of Swanton, Vt.

The Isle La Motte Scholarship, by N. S. Hill, Esq., of Burlington, for the benefit of students from Isle La Motte, and failing such, from Craftsbury.

The Shaw Scholarship, by Hon. William G. Shaw, of Burlington, of the class of '49.

The class of '61 Scholarship, endowed, and made available in 1891.

Several other classes are undertaking to endow scholarships, but none of them are as yet available.

Appointments are made to these scholarships by the Faculty from term to term, and are conditioned on the attainment of a certain grade of scholarship and on exemplary conduct.

The endowment of additional scholarships would enable the University to extend its benefits to those who could not otherwise afford the expense of a four years' maintenance in College. The minimum endowment is one thousand dollars. The annual payment of \$60 relieves one student from the payment of tuition alone; of \$80, from the payment of tuition and annual fees.

STATE SCHOLARSHIPS

Thirty State Scholarships, covering tuition and incidental expenses in the Classical or Scientific departments, are now available.

Nomination to these scholarships rests with the Senators from the several counties, to whom application should be made.

THE JEDEVINE FUND

now available in part, is loaned in small sums to "poor and deserving students" in the Classical and Scientific departments, who are residents of Vermont. The loans must be well secured, and must be repaid within a specified time after the student leaves college. Applications may be made to the Treasurer of the University.

PRIZES

PRIZE FOR PROGRESS

A prize of \$25 will be awarded to the student who, in the judgment of the Faculty, is entitled to the greatest credit for effort and attainment in his studies upon completion of the Junior year.

PRIZES IN ELOCUTION

By gift from Dr. William E. Forest, 1874, New York City, prizes of \$25, \$15 and \$10 are offered to members of the Sophomore and Freshman classes for the best declamation of passages in oratorical prose.

PRIZE DEBATE

Mr. John H. Converse, 1861, has established the "Converse Debate Prizes" of \$50 as first prize and \$25 as second prize, to be awarded, in accordance with regulations to be made by the Faculty, to contestants in a public debate held in connection with the exercises of Commencement.

THE READING PRIZE FOR YOUNG WOMEN

Prizes of \$25, \$15 and \$10 are offered by Mrs. Julia H. Spear, of Burlington, for excellence in reading by young women of the University.

UNIVERSITY OF VERMONT

THE PHELPS PRIZE

A prize of \$50 in gold, endowed in memory of the late Edward Haight Phelps, C. E., class of 1872, will be awarded by the Faculty each year at Commencement to a graduate of that year in Civil Engineering who shall have exhibited conspicuous merit in professional studies, and high and noble traits of personal character. A special certificate will accompany the prize, indicating the conditions upon which it has been awarded. In case no award shall be made in any year, the same amount of money will be expended in the purchase of books on the subject of Civil Engineering for the use of the department.

THESIS PRIZE

A prize of \$25 is awarded to the member of the Senior class in the Civil Engineering department presenting the best thesis.

HOWARD PRIZES

Mrs. Hannah T. Howard, of Burlington, left by will \$1,200. the income of which is to be awarded in prizes.

From the income of the above fund, three prizes of \$25 each will be awarded in 1895 to candidates for admission to the Freshman Class who shall pass the best entrance examinations in Greek, in Latin, and in Mathematics.

THE LIBRARY

The Library of the University, selected with special reference to the several departments of study, contains 34,926 volumes, besides the 12,506 volumes that form the library of the late Hon. George P. Marsh, a collection of the highest value in the departments of Philology, European Literature and History, and Physical Geography. This collection is the gift of the late Hon. Frederick Billings of Woodstock, and is deposited in a room especially provided and elegantly appointed to receive it. The whole library has been carefully

arranged by subjects, on the Dewey system, with accession and shelf catalogues. A card catalogue on the dictionary plan is in progress, being already complete for the subjects, Literature, Philology, History, Industrial Arts, Ethics, Philosophy, Religion and portions of Natural Science. A full catalogue of the Marsh collection, by authors and subjects, has been published.

The beautiful and commodious Billings Library, erected at a cost exceeding \$150,000, with a shelving capacity of 100,000 volumes, contains the general library of the University and the special collections. The apse, originally designed for the Marsh collection, has been appropriated to the use of the reference library and reading room.


The gift of \$10,000 which Mr. Billings made for the increase of the Library has now been mostly expended, and several thousand volumes have been added.

The income from the bequest of Miss Maria Loomis, of Burlington, of the sum of \$10,000, has become available for the purchase of books.

The income from the various funds available for the increase of the Library amounts to something over \$1,000 a year.

The Library is open during term time eight hours daily on week days for consultation and drawing books, and for reading and reference two hours on Sunday afternoons ; and every week day in vacation. The reading room of the Library is supplied with the leading scientific and literary periodicals. Persons not connected with the University have free use of the Library for consultation, and, on special permission from the President or Librarian, are allowed to draw books. Students have also the use of the Fletcher Free Library, a collection of over 22,000 volumes, for loan and reference, which is open daily.

The Library Committee solicits gifts of books and pamphlets relating to Vermont History and the lives of natives of Vermont ; also of copies of all books written by Vermonters, or published in the State, and of files of State papers, especially of the first half of this century, and earlier.

 *Of the Annual Catalogues of the University supposed to have been issued from 1810 to 1833, inclusive, the Library possesses only those of 1822, 1823 and March, 1825. The alumni, and other friends, are earnestly requested to help in completing our file.*

THE MUSEUM

The Museum building contains valuable collections which illustrate all departments of Natural History. There are several thousand specimens of American and European minerals, some of them being exceptionally fine. Nearly all the species mentioned in the ordinary manuals are well represented. Especial attention is called to a very fine series of the Sulphur and associated minerals found in Sicily, which was given by the Hon. G. P. Marsh, as were also a considerable number of other foreign minerals, rocks and fossils. A fine series of the rocks of Europe and a very complete set of the lavas from the neighborhood of Vesuvius as well as some very rare and beautiful Hartz minerals are the gift of Rev. Edward Hungerford. The rocks and minerals of Vermont are also fully illustrated.

A large collection of American and foreign fossils well represents the main subdivisions of Geological time, and most of the minor divisions and groups are fairly indicated by characteristic fossils. A not large but very good collection of birds, some of them being of very rare forms and in the best plumage, includes, besides nearly all the species found in Vermont, many North American and a few foreign species. Most of the mammals found wild in the State have been collected and well mounted for the museum and the same is true of reptiles and fishes. Large alcoholic collections of these latter groups furnish material for investigation. There are also numerous skeletons, crania, nests and eggs of birds.

The Invertebrate collections contain sponges, corals, crinoids, echinoids, etc., dry and alcoholic, together with a considerable series of the beautiful Blaschka models of forms not readily preserved. Of shells there are many thousand specimens, the entire collection of the Hon. L. E. Chittenden and Prof. G. W. Benedict having been added to the previously existing collections.

The Stone age in Europe and North America is illustrated by extensive series of objects from many localities. Vermont Archæology is more completely represented here than anywhere else by thousands of objects in stone, copper, bone, and earthenware. There are also models of the Cliff Houses of Colorado, and a very perfect bas-relief from one of the temples of Nimroud, the gift of Mr. J. H. Converse, 1861.

In modern Ethnology interesting and constantly increasing collections will be found. There is a very complete series of the arms, implements, dresses, etc., used by the Sioux of Montana and collected by Capt. O. B. Read, U. S. A. The museum possesses also similar objects from other parts of the world.

Botany and Forestry are illustrated by a large series of the native woods of North and South America, by fruits dried and in papier maché and by an extensive herbarium.

There is a very good collection of ancient and modern coins.

A collection of about ten thousand specimens of insects includes nearly or quite all that attack vegetation in Vermont, besides many not found in the State.

The above collections are not all placed in open cases, but persons who, for good reason, may desire to see those which are not on view, should make application for the necessary permission to Professor Perkins. None of the collections are as well displayed as they might be, were more space available.

The Museum may be visited at most times during the year. If the door is locked, the key can be obtained at the Library.

ALUMNI ASSOCIATIONS

Local Alumni Associations for cherishing the college spirit, and for promoting the interests of the University in their several localities, have been formed as follows :

THE NEW YORK ASSOCIATION, for New York City and vicinity : President, John J. Allen ; Vice-Presidents, Dr. W. G. T. Shedd, Rev. Lewis Francis ; Secretary and Treasurer, Charles Whiting Baker : Executive Committee, Edward S. Peck, M. D., Arthur H. Hill, Frederick Billings, W. A. Babbitt, George E. Sawyer.

THE NEW ENGLAND ASSOCIATION, meeting in Boston ; President, H. O. Houghton, Cambridge, Mass. : Secretary, Merton E. Shedd, 108 Summer St., Boston, Mass.

It is understood that an Association is to be formed in Chicago at an early day.

ASSOCIATE ALUMNI

President, Charles Dewey, Montpelier, Vt.

Vice-President, Robert D. Benedict, Brooklyn, N. Y.

Secretary, Charles E. Allen, Burlington, Vt.

Treasurer, Don A. Stone, Burlington, Vt.

Obituary Committee, J. E. Goodrich, S. W. Landon, Rev. J. Isham Bliss, John J. Allen.

Executive Committee, E. B. Taft, Rev. S. L. Bates, Elias Lyman, H. C. Farrar, Henry W. Hill.

DEPARTMENT OF MEDICINE

FACULTY

MATTHEW HENRY BUCKHAM, D. D.,

President.

JOHN ORDRONAU, M. D., LL. D.,

Emeritus Professor of Medical Jurisprudence.

J. WILLISTON WRIGHT, A. M., M. D.,

Emeritus Professor of the Principles and Practice of Surgery.

ALBERT F. A. KING, A. M., M. D.,

Professor of Obstetrics and Diseases of Women.

ASHBEL PARMELEE GRINNELL, A. M., M. D.,

Professor of the Theory and Practice of Medicine; Consulting Physician to Mary Fletcher Hospital, and Dean of the Faculty.

RUDOLPH AUGUST WITTHAUS, A. M., M. D.,

Professor of Chemistry and Toxicology.

J. HENRY JACKSON, A. M., M. D.,

Professor of Physiology and Microscopic Anatomy.

ABEL MIX PHELPS, M. D.,

Professor of Surgery; Consulting Surgeon to Mary Fletcher Hospital; Surgeon to Charity Hospital, N. Y.

HENRY CRAIN TINKHAM, M. D.,

Professor of General and Special Anatomy;
Attending Surgeon to Mary Fletcher Hospital.

JAMES NATHANIEL JENNE, M. D.,

Lecturer on Materia Medica and Therapeutics.

JOHN BROOKS WHEELER, A. B., M. D.,

Adjunct Professor of Surgery, Professor of Clinical and Minor Surgery;
Attending Surgeon to Mary Fletcher Hospital.

C. SMITH BOYNTON, A. M., M. D.,

Adjunct Professor of Chemistry.

PATRICK E. MCSWEENEY, M. D.,

Adjunct Professor of Obstetrics;

Attending Physician to Mary Fletcher Hospital.

HENRY H. LEE, M. D.,

Adjunct Professor of Materia Medica.

HARRIS R. WATKINS, M. D.,

Demonstrator of Anatomy;

Attending Physician to Mary Fletcher Hospital.

PROFESSORS OF SPECIAL SUBJECTS

WILDER L. BURNAP, A. M.,

Professor of Medical Jurisprudence.

J. H. WOODWARD, B. S., M. D.,

Professor of Diseases of the Eye, Ear and Throat;

Ophthalmologist to the Mary Fletcher Hospital.

GREAME M. HAMMOND, M. D.,

Professor of Diseases of the Nervous System.

WILLIAM WOTKYNS SEYMOUR, A. B., M. D.,

Professor of Surgical Diseases of Women.

CONDUCT W. CUTLER, M. S., M. D.,

Professor of Dermatology.

J. H. LINSLEY, M. D.,

Professor of Pathology and Bacteriology.

J. H. HAMILTON, M. D.,

Professor of Sanitary Science and Hygiene.

JAMES R. HAYDEN, M. D.,

Professor of Genito-Urinary and Venereal Diseases; Chief of Venereal Clinic.

College of Physicians and Surgeons (Columbia College); Visiting Surgeon
to City Hospital, Blackwell's Island.

P. M. WISE, M. D.,

Professor of Diseases of the Mind; Supt. of St. Lawrence Insane Asylum.

ARTHUR B. BISBEE, M. D.,

Professor of Medical Examinations for Life Insurance.

ANNUAL ANNOUNCEMENT, 1895

The Medical Department of the University of Vermont was chartered by the State in 1823. It was reorganized in 1854. The institution is consequently one of the oldest Medical Colleges in the United States.

The forty-second annual course of lectures will begin Thursday, January 17th, 1895, and continue six months, ending July 8th. This extension of the term will increase the scope of the instruction and afford the student more time to digest the information imparted to him. The corps of instructors has been increased by the election of adjunct Professors to several chairs. These adjuncts will instruct the class by lectures or recitations under the direction of the chief of the department, and such instruction will be a compulsory part of the curriculum. The executive faculty remains unchanged.

There will be only *one* course of lectures each year in this department, *the Preliminary Term having been abolished.*

The curriculum comprises instruction in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice, Obstetrics, Surgery, Diseases of Children, Ophthalmology and Otology, Pathology and Bacteriology, Neurology, Diseases of the Mind, Hygiene, Medical Jurisprudence, Venereal Diseases, Dermatology, Laryngology, Gynæcology and Examinations for Life Insurance. This instruction is given by scholastic and clinical lectures and by demonstrations. Laboratory instruction in Urinary Analysis, Histology, Pathology and Bacteriology and practical work in Physical Diagnosis, Surgery and Demonstrative Obstetrics are now compulsory; and each candidate for the degree of Doctor of Medicine must have taken each of these branches *once* during his attendance at this college, unless he has evidence of having taken the same at some other college.

All private courses by the professors are abolished.

REQUIREMENTS FOR ENTRANCE

A candidate who has been twice rejected on final examination at this College shall not be admitted to matriculation.

All students who have matriculated in this Department of the University *prior to July 8, 1891*, will be admitted to the lectures and enrolled as students in regular standing, *without preliminary examination*.

Applicants *who do not belong to this class* will be required to pass an Entrance Examination in *Arithmetic, Grammar, Geography, Orthography, American History, English Composition and Elementary Physics*, before they may be regularly enrolled as students in good standing in this department. But applicants who may have failed in one or more branches at these examinations may be enrolled as *conditioned* students; they must make up the deficiency however during the first year, before they can be enrolled as students in regular standing.

EXCEPTIONS:—Such entrance examination *will not be required* of applicants of the following classes:

1. Those who declare themselves *in writing* not to be candidates for the Degree in Medicine from this College.

2. Those who have received the Degree of A. B., A. M., B. S., M. S., Ph. B., or Ph. D., from a College or University which maintains a satisfactory academic standard.

3. Those who have successfully completed a full year's course of study in any College or University which maintains a satisfactory academic standard.

4. Those who have passed satisfactorily the entrance examination to the Academic Department of the University of Vermont, or to any other College or University which maintains a satisfactory academic standard.

5. Those who have passed the entrance examination to a Medical School having requirements for entrance equivalent to those adopted by this Faculty.

6. Those who have received a Medical Student's Certificate from the Regents of the State of New York, or from any similarly constituted authority in other States.

7. Those who have received a Diploma or a Certificate for any ten studies from the Regents of the State of New York, or from any similarly constituted authority in other States.

8. Those who have satisfactorily completed a three years' course in a High School, Normal School or Academy.

REQUIREMENTS FOR GRADUATION

Students who have matriculated in this College prior to July 1, 1890, will be subject to the regulations and requirements for graduation as printed in the Announcement for 1890.

THREE FULL COURSES OF LECTURES, OF AT LEAST TWENTY WEEKS EACH, WILL BE ABSOLUTELY REQUIRED OF STUDENTS WHO DO NOT COME UNDER THE ABOVE REGULATION, AND NO PERIOD OF PRACTICE WILL BE TAKEN AS AN EQUIVALENT OF ONE COURSE.

No candidate shall be admitted to an examination until all fees due the College from such candidate shall have been paid.

Candidates for the degree of Doctor of Medicine, before presenting themselves for examination, must have attended at least three full courses of lectures of twenty weeks' duration each, the last at this College. The candidate must have studied medicine three years, must have attained the age of twenty-one years, and must present full certificates of the time of his study, of age, and of moral character. Each candidate is required to deposit his examination fee with the Secretary of the Faculty one month before the close of the session, and to furnish evidence of having pursued the study of Practical Anatomy under the direction of a demonstrator.

He must have taken at least one course of laboratory instruction in Urinary Analysis, in Histology, and in Pathology and Bacteriology and one course of practical work in Physical Diagnosis, in Practical

Surgery, and in Demonstrative Obstetrics in some regular medical college before he may become a candidate for graduation.

He must also pass a satisfactory written or oral examination before the Medical Faculty and Board of Medical Examiners appointed by the State Medical Society. No thesis is required.

The tickets and diplomas of Eclectic and Homœopathic, or Botanic Colleges, or of Colleges devoted to any special system of medicine, are considered irregular, and will not be recognized under any circumstances. Certificates from preceptors who practice any particular system of medicine, or who advertise, or violate in any way the Code of Ethics adopted by the profession, will not be accepted under any circumstances, even if the preceptors are regular graduates in medicine.

Graduates of other regular Medical Colleges who desire a degree from this University must pass a satisfactory examination in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice of Medicine, Surgery and Obstetrics. No thesis is required.

No credit in time or in lectures shall be given any student by virtue of his degree in Pharmacy, Dentistry, or Veterinary Surgery.

Degrees *in absentia* are not conferred by this University under any circumstances whatever.

EXAMINATIONS IN ELEMENTARY BRANCHES

Students who have attended two full courses of lectures *in all departments taught in this College* may be examined upon Anatomy, Physiology, Chemistry and Materia Medica at the end of the second course, and if successful in these examinations they will be examined at the end of the third course upon Practice of Medicine, Surgery and Obstetrics only. Candidates for the primary examinations will be required to pay three-fifths of the examination fee. The primary examinations are held at the close of the regular session only. The certificate and the remainder of the examination fee are to be handed to the Secretary at the regular time before the examination. Certifi-

cates of having passed in any branch or branches in other colleges are not accepted by this College.

FACULTY PRIZES .

The Faculty have established two Prizes for general proficiency in examination—a First Prize of Fifty Dollars and a Second Prize of Twenty-five Dollars. These prizes will be awarded as follows :

The ten students who pass the best examinations for their degree will be allowed to compete in a written examination for the prizes; of this number, the five who rank highest shall be called Honor Men, and will each receive a *Special Diploma of Honor*, and of these last, those who are deemed worthy shall receive respectively the first and second prizes.

The Honor Men of 1894 were: Charles D. Kelly, Frederick E. Clark, Abner C. Matthews, Guy L. Noyce, Oscar C. Young. The First Prize was awarded to Charles D. Kelly; the Second Prize to Frederick E. Clark.

FULL FEES OF THE COLLEGE

MATRICULATION FEE, payable each term.....	\$ 5 00
FULL COURSE OF LECTURES, 1st year.....	80 00
FULL COURSE OF LECTURES, 2nd year.....	80 00
FULL COURSE OF LECTURES, 3rd year and each subsequent year	60 00
SINGLE TICKETS.....	15 00
EXAMINATION FEE, payable once, and not returnable.....	25 00
EXAMINATION FEE, Primary Branches.....	15 00
EXAMINATION FEE, Final Branches.....	10 00
DEMONSTRATOR'S FEE, required of every new matriculant, in- cluding material.....	10 00

Candidates for graduation must have taken each of the following practical courses once sometime during their attendance at this or some other regular Medical College:

HISTOLOGY	\$10 00
PATHOLOGY	10 00
URINALYSIS	10 00
PHYSICAL DIAGNOSIS	10 00
DEMONSTRATIVE OBSTETRICS	10 00
PRACTICAL SURGERY	10 00

Students who have attended two full courses of lectures in some other regular school or schools are admitted on paying the matriculation fee and \$60.

Students who have already attended one full course in this College and one full course in some other regular Medical School are admitted on paying the matriculation fee and \$60.

Graduates of other regular American Medical Schools are admitted on payment of the matriculation fee and \$25.

Graduates of this school are admitted without fee.

Theological students are admitted on payment of the matriculation fee only, unless intending to graduate in medicine, in which case they will be required to conform to the above conditions.

All fees must be paid to the Secretary, and are payable in advance.



BOARD may be obtained for from \$3.50 to \$5.00 per week. Good accommodations furnished students who wish to board themselves. Many adopt this method at a great reduction in expense. Students who intend to board themselves will find such bedding and culinary articles as they may require furnished with the rooms.

After registering, every student is furnished with a certificate entitling him to half-fare on railroad and steamboat lines running into Burlington.

For further particulars address the Secretary,

DR. B. J. ANDREWS,
Mary Fletcher Hospital,
BURLINGTON, VT.

STUDENTS OF 1894

James T. Adams.....	Sandwich, N. H.
Charles Aldrich.....	W. Poland, Me.
Lyman Allen, A. B.	Burlington, Vt.
Edgar W. Arner	Allentown, Pa.
Charles R. Balcom	New Ipswich, N. H.
George L. Bates.....	Morrisville, Vt.
John H. Bean	Milton, Vt.
William P. Beauclerk.....	Irasburgh, Vt.
James P. Beirne.....	Keene, N. H.
George C. Berkley.....	Milton, Vt.
Cornelius H. Bishop.....	Walden, N. Y.
Winfred H. Bixby.....	Clarendon, Vt.
Lynne H. Blanchard.....	Springfield, Me.
Harry A. Brown.....	Salmon Falls, N. H.
Lester W. Burbank, B. S.	Walden, Vt.
Elmer A. Burdick.....	Winooski, Vt.
Albert F. Caldwell, Jr.....	New Bedford, Mass.
Ernest O. Chellis.....	Bangor, Me.
Eugene D. Chellis.....	Bangor, Me.
Harry A. Cheney.....	Ashland, N. H.
Frank M. Child.....	Hoboken, N. J.
Frederick E. Clark.....	Ashburnham, Mass.
Ernest O. Cobb.....	Mechanics Falls, Me.
Bernie D. Colby, A. B.....	Lincoln, Vt.
Cheney I. Cole.....	Burlington, Vt.
Francisco Vasquez Colon.....	Porto Rico, W.I.
Edward R. Cooke.....	Toledo, Ohio
Louis J. Cooke	Toledo, Ohio
Edward B. Corley.....	Burlington, Vt.
James W. Courtney.....	Burlington, Vt.
Edward M. Crane.....	Hardwick, Vt.
John P. J. Cummings, A. B.....	Vineland, N. J.
Clarence P. Curley.....	Fairfax, Vt.

Fred R. Dame.....	Farmington, N. H.
Edwin B. Davis.....	Rutland Vt.
Percy G. Davis.....	Bangor, Me.
John R. Disbrow	Dalhousie, N. B.
Charles B. Doane.....	Bakersfield, Vt.
Cornelius H. Donovan.....	Keene, N. H.
Charles J. Downey.....	Granville, Mass.
John A. Drew.....	Burlington, Vt.
Augustus B. Drummond.....	Bangor, Me.
Charles E. Duffy.....	Parishville, N. Y.
Frank L. Dunham, A. B.....	Northfield, Vt.
George A. Ellinwood.....	Auburn, Me.
Elmer E. Ellis.....	Roxbury, Vt.
William H. Englesby, A. B.....	Burlington, Vt.
John W. Estabrooke.....	Shelburne, Vt.
Albert S. Fay.....	Potsdam, N. Y.
Harold A. Fiske.....	Roxbury, Vt.
William H. Fitzgerald.....	Middletown, Conn.
William F. Fitzpatrick.....	White River Junction, Vt.
Harry M. Gardner.....	Brimfield, Mass.
Bert D. George.....	East Calais, Vt.
Charles S. Gilman.....	Lakeport, N. H.
George W. Girard.....	Burlington, Vt.
George E. Goodwin.....	Johnson, Vt.
Watkins W. Griffiths.....	Wales, Eng.
Merton L. Griswold.....	Brookfield, Vt.
M. K. Gudinian	Armenia
William G. B. Hall.....	Troy, N. Y.
Schuyler W. Hammond.....	Mechanicsville, Vt.
William A. Hare.....	Ashburnham, Mass.
Franklin E. Harlow.....	Windsor, Vt.
Fred T. Hatch.....	Burlington, Vt.
Jefferson Hawthorn.....	Pittston, Me.
Van Buren Herrick.....	Fairfield, Vt.

Frank W. Hewes.....	S. Strafford, Vt.
Thomas C. Hill, Jr.....	Charlotte, Vt.
Michael Hintlian	Harpoot, Turkey
George Holbrook.....	Springfield, Vt.
Luman C. Holcombe..	Isle La Motte, Vt.
George W. Holden.....	Barre Plains, Mass.
Edward J. Horan.....	Pittsfield, Mass.
Charles B. Hussey.....	Franklin, Mass.
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The following gifts are of special interest :

From Mr. Lawrence K. Barnes, of Brooklyn, N. Y., a valuable file of 31 bound volumes of the *New York Times*, 1861-1877.

From Mr. Abner Benedict, 1843, Godefroy's 1615 Geneva folio edition of the *Corpus Juris Civilis*, 2 volumes.

From Mr. William Bayard Cutting of New York City, a numbered copy of the History of the Centennial of the Inauguration of George Washington, a folio copiously illustrated with photographs.

From Prof. Horatio Loomis, 1876, a file of the *New York Semi-Weekly Tribune*, nearly complete from 1847 through 1887, and 484 volumes and 386 pamphlets.

From Prof. G. H. Perkins, 89 choice volumes of theology.

From Prof. V. G. Barbour, 17 volumes, completing our file of *Van Nostrand's Eclectic Engineering Magazine*.

From Mr. E. L. Ingalls, 1896, 52 numbers of Walton's Vermont Register, from 1820.

From Gen. Rush C. Hawkins, photographs of charts in the Ambrosian Library in Milan.

Notice has been received from the executors of the will of Rev. W. G. T. Shedd, D. D., of New York, that he has bequeathed his theological library to the University. From the wide and varied learning displayed by Prof. Shedd in his published works, it is inferred that the collection is rich in theological treatises in English and foreign languages and will prove to be of great value.

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Through the generosity of the following persons, the University has been enabled during the past year to join the league of Colleges and Universities which maintain the *American School of Classical Studies in Athens*, an institution which has as its object the study of Classical Archæology and the training of Classical Teachers :

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H. N. Hibbard, '50.	Norman Williams, '55.
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Seniors, 42; Juniors, 56; Sophomores, 61; Freshmen, 69; Graduate Student, 1. Total.....	229
Classical Students, 82; Literary Scientific, 48 ;	
Students in Department of Arts.....	130
Engineering Students, 42; Chemical, 16; Agricultural, 27;	
Students in Scientific Departments.....	85
Special Students.....	14
Total Academic Students.....	229
Medical Students.....	160
Dairy Students.....	50
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1895-96

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S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	1	1	..	1	2	3	4	5	6
2	3	4	5	6	7	8	2	3	4	5	6	7	8	7	8	9	10	11	12	13
9	10	11	12	13	14	15	9	10	11	12	13	14	15	14	15	16	17	18	19	20
16	17	18	19	20	21	22	16	17	18	19	20	21	22	21	22	23	24	25	26	27
23	24	25	26	27	28	29	23	24	25	26	27	28	29	28
..	30	31
MARCH.							SEPTEMBER.							MARCH.						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	1	2	3	4	5	..	1	2	3	4	5	6
8	9	10	11	12	13	14	6	7	8	9	10	11	12	7	8	9	10	11	12	13
15	16	17	18	19	20	21	13	14	15	16	17	18	19	14	15	16	17	18	19	20
22	23	24	25	26	27	28	20	21	22	23	24	25	26	21	22	23	24	25	26	27
29	30	31	27	28	29	30	28	29	30	31
..
APRIL.							OCTOBER.							APRIL.						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	1	2	3	4	1	2	3	1	2	3
5	6	7	8	9	10	11	4	5	6	7	8	9	10							

11	12	13	14	15	16	17	11	12	13	14	15	16	17							
19	20	21	22	23	24	25	18	19	20	21	22	23	24							
26	27	28	29	30	..	..	25	26	27	28	29	30	31							
..							
MAY.							NOVEMBER.							MAY.						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	..	..	..	..	1	2	1	2	3	4	5	6	7	..	..	..	..	..	..	1
3	4	5	6	7	8	9	8	9	10	11	12	13	14	2	3	4	5	6	7	8
10	11	12	13	14	15	16	15	16	17	18	19	20	21	9	10	11	12	13	14	15
17	18	19	20	21	22	23	22	23	24	25	26	27	28	16	17	18	19	20	21	22
24	25	26	27	28	29	30	29	30	..	..	..	..	..	23	24	25	26	27	28	29
31	..	..	..	..	..	..	..	..	..	..	..	..	..	30	31	..	..	..	..	..
JUNE.							DECEMBER.							JUNE.						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	1	2	3	4	5	6	..	1	2	3	4	5	6	..	..	1	2	3	4	5
7	8	9	10	11	12	13	6	7	8	9	10	11	12	6	7	8	9	10	11	12
14	15	16	17	18	19	20	13	14	15	16	17	18	19	13	14	15	16	17	18	19
21	22	23	24	25	26	27	20	21	22	23	24	25	26	20	21	22	23	24	25	26
28	29	30	..	..	..	..	27	28	29	30	31	..	..	27	28	29	30	..	..	..
..

CALENDAR

1895.

25 Sept., Wednesday, A. M., Thanksgiving Recess, Christmas Recess,	First half-year began. From Tuesday evening, Nov. 26, to Monday noon, Dec. 2. From Friday evening, Dec. 20, to Thursday noon, Jan. 2.
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1896.

3 Feb., Monday, 13 " Thursday, Spring Recess. 8 May, Friday, 8 P. M., 11 June, Thursday, 21 " Sunday, 3 P. M., 21 " " 7.30 P. M., 22 " Monday, 23 " Tuesday, 9 A. M., 23 " " 10 A. M., 23 " " 3 P. M., 23 " " 7.30 P. M., 24 " Wednesday, 25 " Thursday, 9 A. M., } and 2 P. M., }	Mid-year Examinations begin. Second half-year begins. From Friday evening, March 27, to Tuesday noon, April 7. Prize Reading for Women Students. Final Examinations begin. Baccalaureate Discourse. Anniversary of Y. M. C. A. Class Day. Meeting of Phi Beta Kappa Society. Meeting of Alumni Association. Oration before Phi Beta Kappa Society. Forest Prize Speaking. Commencement. Entrance Examinations.
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SUMMER VACATION

29 Sept., Tuesday, 9 A. M., } and 2 P. M., }	Entrance Examinations. 30 Sept., Wednesday, 8.15 A. M., First half-year begins. 10 Oct., Saturday, Freshman Prize Entrance Examinations begin.
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DEPARTMENT OF MEDICINE

1896.

16 Jan., Thursday, 6 July, Monday,	Lectures begin. Exercises of Graduation.
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HISTORY AND CHARTERS

“An Act for the purpose of Founding a University at Burlington” was passed by the Legislature of Vermont, Nov. 2nd, 1791, of which the following are the Preamble and First Section :

“Whereas the education of youth is necessary for the advancement of morality, virtue and happiness, and tends to render a people or State respectable ; to promote which, establishments for Seminaries and Colleges have ever been patronized by all good governments ; and whereas several grants of land have already been made by the State, and private liberal donations have been offered, for promoting so needful an establishment within the same, which demand the attention of this Legislature for laying the foundation for an institution so beneficent to society ; therefore,

Section I. It is hereby enacted by the General Assembly of the State of Vermont, that there shall be and hereby is a College instituted and established at such place in the township of Burlington in the County of Chittenden as the Corporators hereinafter named shall think most convenient for that purpose, to be known and designated by the style of THE UNIVERSITY OF VERMONT.”

A subsequent Act gave to the Corporation of the University “full power, right, and authority to appropriate to the use and benefit of the said University forever all such lands as have been already granted and reserved by the authority of this State for the use and benefit of a College.”

The Act of Incorporation vested in the Trustees of the University of Vermont full power “to appoint, elect, support and remove from time to time, all such officers and servants as they shall find necessary ; to direct the studies of the youth ; to establish professorships and professors, and provide for their support ; to make and establish all necessary rules, regulations and by-laws for the orderly government of said University (provided always that the said rules, regulations and by-laws shall not tend to give preference to any religious sect or denomination whatsoever) ; to grant and confer all such degrees, literary titles, honors and distinctions as other Universities,

Colleges and Seminaries have done or may of right do; and to do any other thing which shall be found necessary for the government and welfare of such an institution."

With the consent of the Corporation certain changes were made by the Legislature in respect to the number and the mode of election of the trustees of the University by Acts passed Nov. 2nd, 1810, and October 31st, 1828, but these were, with like consent, repealed by the Act of October 30th, 1838, which revived and confirmed the provisions of the original charter, which charter remains in full force at the present time, with such modifications as the Corporation of the University accepted in 1865, in accordance with the provisions of the charter of The University of Vermont and State Agricultural College.

In 1862, largely through the exertions of Hon. Justin S. Morrill, then Representative and since Senator from Vermont, Congress passed an "Act donating public lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts." Under the provisions of this Act, the Legislature of Vermont chartered in 1862 the Vermont Agricultural College, which, failing to receive the support necessary to put it into operation, was by an Act approved Nov. 6th, 1865, incorporated with the University of Vermont into one institution by the name of "The University of Vermont and State Agricultural College." This corporation is invested with the property, rights, powers and privileges which belonged to both or either of the corporations so combined, and "shall be and remain a body corporate forever, for the purpose of carrying out the objects contemplated in the respective charters" of the two institutions.

The "objects contemplated" in the charter of the Vermont Agricultural College are stated in the exact language of the Act of Congress providing for Colleges of Agriculture and the Mechanic Arts, as follows :

"The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic

arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

The objects contemplated in the charter of the University of Vermont are stated in the Preamble and Sections as given above.

The charter of the University of Vermont and State Agricultural College requires that "there shall, at all times, be maintained in the institution hereby created such instruction in the various branches of learning as is contemplated in the several charters of each of the institutions hereby united; and more particularly including a four years' course of studies, similar to such as are generally taught in other colleges and not inferior to that recently taught in said University of Vermont; and in addition to that which is usually taught in other colleges, the instruction in this institution shall include such enlarged facilities, and extended scope and variety in the study of those branches which relate to military tactics, agriculture and the mechanic arts, as shall render the whole instruction in conformity with said Act of Congress, as well as with the several charters aforesaid."

Section II of the Charter provides that, for the purpose of receiving property by gift, grant, bequest or otherwise, and for certain other purposes therein specified, each of the original corporations shall be deemed and treated as having continued in life.

Gifts and bequests may therefore be made to (1) The University of Vermont, (2) The Vermont Agricultural College, (3) The University of Vermont and State Agricultural College.

By the provisions of

"An Act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of an act of Congress, approved July second, eighteen hundred and sixty-two," the institution receives from the United States Treasury an annual appropriation to be applied "only to instruction in Agriculture, the Mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

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11

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FRANK ABIRAM RICH, V. S., M. D., Instructor in Veterinary Medicine.	67 Cherry St.
HEMAN BETHUEL CHITTENDEN, A. M., Instructor in the Agricultural Department,	160 Pine St.
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Instructor in Horticulture and Agriculture.	
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Instructor in Dairying.	
JAMES EATON, Instructor in Shop Work.	44 M. Converse Hall
HARRIS RALPH WATKINS, M. D., Demonstrator of Anatomy.	234 Main St.
CARROLL WARREN DOTEN, Ph. B., Instructor in Elocution.	51 Loomis St.

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PROFESSOR BARBOUR, Superintendent of Buildings and Grounds.	90 N. Prospect St.
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GEORGE MILLAR SABIN, Assistants in the Chemical Laboratory.	
JOHN FINDLAY YOUNG, B. S., Assistant in the Electrical Laboratory.	
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FRANK ROLAND JEWETT, Organist.	

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Athletic Committee

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PROFESSOR VOTEY
PROFESSOR AYER
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PROFESSOR GOODRICH
MR. STEARNS

STUDENTS

Graduate Students

NAME	RESIDENCE	ROOM
J. Lee Fletcher Y. C. C. R. S. 1894	West Glover	180 S. Prospect St.
English Literature		
Marion L. J. R. S. 1895	Winooski	72 Main St., Winooski
Mathematics, Physics and English Literature		

SENIOR CLASS

Classical Students

Charles Ethan Allen	Rutland	100 Church St.
George Pomeroy Anderson	St. Albans	5 S. College
George Fletcher Beecher	Essex Centre	19 Orchard Terrace
Norris Darling Blake	Eden	100 Church St.
Grace Mabel Brewster	Bristol	483 Main St.
Thomas Hawley Canfield, jr.	Burlington	146 Williams St.
John Edward Colburn	Foster Brook, Pa.	36 S. Converse Hall
Fannie Eastman	Bradford	190 Colchester Ave.
Chauncey Marsh Goodrich	Burlington	483 Main St.
Erwin Maurice Harvey	West Topsham	34 M. Converse Hall
Robert Hazen	Richmond	6 S. College
Elwin Leroy Ingalls	Montgomery	6 S. College
Annie Bowen Leavens	Passaic, N. J.	411 Main St.
Florence Joanna May	St. Johnsbury	29 Mansfield Ave.
Elisabeth Norton	Rutland	468 College St.
Frederick William Roberts	Burlington	88 Main St.
Henry Bigelow Shaw	Burlington	253 S. Union St.
Mattie Elisabeth Spafford	Rutland	411 Main St.
Joseph Tuttle Stearns	Burlington	44 S. Willard St.
Charles Clinton Taylor	Richford	19 Converse Court

Literary-Scientific Students

NAME	RESIDENCE	ROOM
Charles Atwood Bates	<i>Randolph</i>	3 N. College
Frank Parker Bingham	<i>Buffalo, N. Y.</i>	849 College St.
John Harold Buffum	<i>East Dorset</i>	19 Converse Court
Herbert Bill Hanson	<i>Barre</i>	5 M. Converse Hall
Leirion Hannah Johnson	<i>Burlington</i>	86 Converse Court
Ruth Ida Norton	<i>Bristol</i>	51 N. Union St.
May Aurelia Peck	<i>Brookfield</i>	85 Colchester Ave.
Jessie Scott	<i>Burlington</i>	151 N. Union St.
Helen Frances Slade	<i>Thetford</i>	411 Main St.
Edith Emma Smith	<i>Burlington</i>	415 Maple St.

Civil Engineering Students

Alfred Breen Cutter	<i>Marlborough, Mass.</i>	145 Main St.
Charles Hartt Hagar	<i>Burlington</i>	337 College St.
William John Knox	<i>Craftsbury</i>	133 King St.
George Soter Miller	<i>Lowell, Mass.</i>	145 Main St.
Daniel Luman Parker	<i>Bethel</i>	7 N. College
Ernest Holley West	<i>Dorset</i>	6 S. Converse Hall

Mechanical Engineering Students

Fred Steele English	<i>Woodstock</i>	4 N. College
Nathaniel King	<i>Plymouth</i>	229 Colchester Ave.

Electrical Engineering Students

Dana Edwin Bicknell	<i>Underhill</i>	2 Colchester Ave.
Ernest Henry Chase	<i>Woodstock</i>	12 S. College
Sydney Farnsworth Weston	<i>Cascadeville, N. Y.</i>	6 S. Converse Hall
Charles Gardner Winslow, A. B.	<i>Brandon</i>	849 College St.

Chemical Students

John Mason Blake	<i>Fairfax</i>	19 Converse Court
Harry DeWitt Giddings	<i>Burlington</i>	173 Loomis St.
George Millar Sabin	<i>Malone, N. Y.</i>	349 College St.
Frank Robert Wright	<i>Newport</i>	8 M. Converse Hall

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NAME	RESIDENCE	ROOM
James Wesley Boyce	<i>W. Burke</i>	11 Exp. Station
Carl Wallace Fisher, Sp.	<i>Cabot</i>	15 Exp. Station
Joseph Benjamin Kidder	<i>E. Hardwick</i>	15 Exp. Station
Homer Jones Sargent	<i>E. Corinth</i>	16 Exp. Station
Carl Cyrus Tracy	<i>Randolph</i>	11 Exp. Station

Special Students

Mary Luella Amell	<i>Burlington</i>	239 Colchester Ave.
Avery Douglas Billings	<i>Rutland</i>	82 S. Converse Hall

JUNIOR CLASS**Classical Students**

Lemuel Payson Adams	<i>Swanton</i>	85 S. Converse Hall
Blanche Brigham	<i>Hyde Park</i>	483 Main St.
George Moxham Burdick	<i>Crown Point, N. Y.</i>	69 Grant St.
Henry Wallace Clark	<i>Castleton</i>	5 S. College
Gay Worthington Felton	<i>Berkshire</i>	339 North St.
Tracy Elliot Hazen	<i>Richmond</i>	178 S. Prospect St.
George Maynard Hogan	<i>St. Albans</i>	35 S. Converse Hall
Minnie Hodges Hurley	<i>Northfield</i>	29 Mansfield Ave.
Fred Kinney Jackson	<i>Barre</i>	349 College St.
Wells Howard Mace	<i>Burlington</i>	47 Hyde St.
Theodora May Plumley	<i>Northfield</i>	29 Mansfield Ave.
Annie Laurie Sherburne	<i>N. Pomfret</i>	411 Main St.
Robert Meech Walker	<i>Burlington</i>	347 S. Union St.
Arthur Roy Webster	<i>Irasburgh</i>	2 S. College
Donald Clark Wedgeworth	<i>W. Berkshire</i>	Middle College
George Washington Tapley Whitney	<i>Bethel</i>	7 N. College
Frederick Buell Willard	<i>Burlington</i>	102 Summit St.

Literary-Scientific Students

NAME	RESIDENCE	ROOM
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John Stephen Buttles	<i>Brandon</i>	85 M. Converse Hall
Charles Austin Coburn	<i>Enosburgh</i>	41 M. Converse Hall
May Alice Edwards	<i>Winooski</i>	Weaver St., Winooski
Arline Estelle Ladd	<i>Thetford</i>	411 Main St.
Adelle Irene Lee	<i>Burlington</i>	483 S. Union St.
Albert Ernest Lewis	<i>Randolph</i>	3 N. College
Frederic Fuller Lincoln	<i>Malone, N. Y.</i>	349 College St.
Grace Alice Noyes	<i>Hyde Park</i>	51 N. Union St.
Katharine Jane Page	<i>Hinesburgh</i>	80 College St.
Bessie Lou Stearns	<i>Burlington</i>	85 Loomis St.

Civil Engineering Students

Wells Eugene Bennett	<i>Lacrosse, Wis.</i>	4 Hickok Place
Frank Porter Davis	<i>Essex</i>	888 S. Union St.
James Lyford Davis	<i>Fairlee</i>	Middle College
Leonard Smith Doten	<i>Burlington</i>	51 Loomis St.
Douglas Winfield Holton	<i>Burlington</i>	7 Johnson St.
George Peter Parady	<i>Burlington</i>	392 North St.
Hugh Aaron Seager	<i>Brandon</i>	178 Loomis St.
George Edson Philip Smith	<i>W. Burke</i>	11 S. College

Mechanical Engineering Students

Ora Alonzo Colby	<i>Woodstock</i>	43 M. Converse Hall
William James Sayward	<i>Woodstock</i>	1 M. Converse Hall

Electrical Engineering Students

Arthur Otis Howe	<i>Newfane</i>	6 N. College
Almon Beede Stetson	<i>Wadham's Mills, N. Y.</i>	44 M. Converse Hall

Chemical Students

NAME	RESIDENCE	ROOM
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Walter Pope Kern	<i>Burlington</i>	72 S. Winooski Ave.
William Wallace Murray	<i>Winooski</i>	Canal St., Winooski
Charles Flagg Whitney	<i>Williston</i>	11 S. College
Charles Augustus Wronn	<i>Burlington</i>	14 Buell St.

Agricultural Students

Charles Frederick Clark	<i>Glover</i>	12 Exp. Station
Edward Elisha Herrick	<i>Milton</i>	19 Exp. Station
George Campbell Hubbard	<i>Springfield</i>	18 Exp. Station
William Allen Orton	<i>Fairfax</i>	16 Exp. Station
Madison Alden Parker	<i>Concord</i>	12 Exp. Station

Special Student

Harlow Franklin Hyde	<i>Burlington</i>	133 Hyde St.
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Partial Students

Florence Lyman Allen	<i>Burlington</i>	142 University Place
Otis Warren Barrett	<i>Clarendon</i>	18 N. College
Constance Hickok	<i>Burlington</i>	567 St. Paul St.

SOPHOMORE CLASS**Classical Students**

William Henry Burt	<i>Taunton, Mass.</i>	8 S. College
James Ora Coddling	<i>Westminster West</i>	16 N. College
Samuel Warren Hamilton	<i>Rutland</i>	42 S. Converse Hall
Carlton Dexter Howe	<i>Newfane</i>	6 N. College
Clifton Durant Howe	<i>Newfane</i>	6 N. College
Peer Prescott Johnson	<i>Burlington</i>	36 Converse Court
Fred Halsey Larabee	<i>Craftsbury</i>	144 S. Willard St.
William Barry Leavens	<i>Passaic, N. J.</i>	25 S. Converse Hall
Albert Fay Lowell	<i>Burlington</i>	49 Mansfield Ave.

SOPHOMORE CLASS

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NAME	RESIDENCE	ROOM
Ida Maud Miles	<i>Barton</i>	411 Main St.
Mabel Augusta Miles	<i>Barton</i>	411 Main St.
Henry Farnham Perkins	<i>Burlington</i>	205 S. Prospect St.
Perley Orman Ray	<i>Burlington</i>	108 N. Winooski Ave.
William Julius Russell	<i>Burlington</i>	386 S. Union St.
Russell Wales Taft	<i>Burlington</i>	291 S. Union St.
John Cutler Torrey	<i>Burlington</i>	75 S. Prospect St.
Julius Spear Turrill	<i>Burlington</i>	258 S. Willard St.
Charles Strain Van Patten	<i>Burlington</i>	386 Pearl St.
Harris Hard Walker	<i>Burlington</i>	181 S. Union St.
Ellery Elmer Webster	<i>Barton</i>	

Literary-Scientific Students

William Silas Bean	<i>Newport</i>	46 S. Converse Hall
Carrie Esther Deavitt	<i>Montpelier</i>	34 Colchester Ave.
William James Forbes	<i>Fairhaven</i>	349 College St.
Helen Grace Hendee	<i>Brandon</i>	150 Bank St.
Elwyn Nehemiah Lovewell	<i>Fairlee</i>	15 S. College
Walter Towne Mott	<i>St. Albans</i>	57 N. Willard St.
Clarence Elbert Noyes	<i>Castleton</i>	7 S. College
Roy Leonard Patrick	<i>Burlington</i>	89 S. Union St.
Marian Brigham Rustedt	<i>Richford</i>	411 Main St.
Ide Gill Sargeant	<i>Granville</i>	57 Elmwood Ave.
Mabel Sophia Way	<i>Burlington</i>	82 King St.
Robert Child Wilson	<i>Bethel</i>	5 M. Converse Hall

Civil Engineering Students

Ernest Hyde Bell	<i>St. Albans</i>	69 Grant St.
William Henry Haywood, jr.,	<i>Brattleboro</i>	14 N. College
Nelson Bertrand Keeler	<i>Hyde Park</i>	349 College St.
Arthur Warren Floyd	<i>Lowell, Mass.</i>	69 Grant St.
Merton Corey Robbins	<i>Brattleboro</i>	5 N. College
Edward Philo Woodbury	<i>Burlington</i>	416 Pearl St.

Mechanical Engineering Students

NAME	RESIDENCE	ROOM
Floy Edson Booth	<i>Swanton</i>	85 S. Willard St.
Edward R. Mack	<i>Hardwick</i>	4 M. Converse Hall
Charles Stewart Raymond	<i>Ludlow</i>	49 Mansfield Ave.

Electrical Engineering Student

William LeRoy Bryant	<i>Ludlow</i>	1 M. Converse Hall
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Chemical Students

Louis Collins Dodd	<i>Buffalo, N. Y.</i>	4 M. Converse Hall
John Oliver Presbrey, <i>Sp.</i>	<i>Burlington</i>	109 Summit St.
Lewis Henry Taft, <i>Sp.</i>	<i>Burlington</i>	197 S. Willard St.
Charles Douglas Waters	<i>Winooski</i>	E. Spring St., Winooski
William Thomas Whelan	<i>Montpelier</i>	27 N. Willard St.

Agricultural Students

Lawrence Wesley Barton	<i>Ludlow</i>	14 Exp. Station
Vinton Albert Clark	<i>Burlington</i>	10 N. College
Lewis Walbridge English	<i>Woodstock</i>	13 Exp. Station
Warner Jackson Morse	<i>Waterbury Centre</i>	15 Exp. Station
William Comstock Perry	<i>Rowayton, Conn.</i>	14 Exp. Station
Herbert Leon Priest	<i>Plymouth</i>	69 College St.
Duncan Stuart	<i>Burlington</i>	Exp. Farm
Dennie Hammond Udall	<i>Craftsbury</i>	17 Exp. Station
Arthur Montague Vaughan	<i>Woodstock</i>	18 Exp. Station

Partial Students

Charles Arthur Beach	<i>Burlington</i>	56 King St.
Edward Thomas Monahan	<i>Underhill</i>	220 Main St.
Carrie Bailey Nye	<i>Burlington</i>	98 King St.

FRESHMAN CLASS

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FRESHMAN CLASS

Classical Students

NAME	RESIDENCE	ROOM
Max Walter Andrews	<i>W. Berkshire</i>	20 S. College
Charles Francis Blair	<i>Morrisville</i>	29 Mansfield Ave.
David Royal Bosworth	<i>Bristol</i>	45 S. Converse Hall
Carl Brigham Brownell	<i>Burlington</i>	196 S. Willard St.
Harley Wheeler Chittenden	<i>Burlington</i>	160 Pine St.
Genevieve Collins	<i>Burlington</i>	Interval Road
Clarence Lee Cowles	<i>Craftsbury</i>	43 N. Union St.
Leon Ernest Daniels	<i>Morrisville</i>	23 M. Converse Hall
Samuel Campbell Dunlop	<i>Poultney</i>	7 S. College
Ernest Julius Ewing	<i>Clarendon</i>	1 S. Converse Hall
Frank Keeler Goss	<i>Vergennes</i>	24 M. Converse Hall
Ada Almina Hurlburt	<i>Burlington</i>	57 Loomis St.
Frank Roland Jewett	<i>Swanton</i>	85 S. Willard St.
Wait Chatterton Johnson	<i>Rutland</i>	45 S. Converse Hall
Robert Ashton Lawrence	<i>Rutland</i>	42 S. Converse Hall
Abbie Katharine Leonard	<i>Grafton</i>	411 Main St.
Marion McIntyre	<i>Randolph</i>	411 Main St.
George Douglas Osgood	<i>Montpelier</i>	41 S. Converse Hall
Russell Smith Page	<i>Hyde Park</i>	32 Buell St.
Walter George Sprague Ross	<i>Vergennes</i>	146 Williams St.
May Winifred Russell	<i>Burlington</i>	129 Loomis St.
Donald Harris Scribner	<i>Hyde Park</i>	32 Buell St.
Eunice Dewey Smith	<i>Barre</i>	411 Main St.
Harry Warner Smith	<i>Swanton</i>	85 S. Willard St.

Literary Scientific Students

Warren Robinson Austin	<i>Highgate</i>	41 M. Converse Hall
Charles Alpheus Bigelow	<i>Bristol</i>	41 Grant St.
Charles Ira Button	<i>Brandon</i>	29 Mansfield Ave.
Clarence Elbridge Emery	<i>Randolph</i>	45 M. Converse Hall

NAME	RESIDENCE	ROOM
Frank Floyd Finney	<i>Hinesburgh</i>	193 St. Paul St.
Ruth Fisher	<i>Vergennes</i>	355 Pearl St.
Mary Isabelle Gregory	<i>Burlington</i>	56 Elmwood Ave.
Annie Elisabeth Hawley	<i>Swanton</i>	177 S. Prospect St.
Ray Woodbury Huse	<i>Montpelier</i>	81 S. Converse Hall
Guy Philbrick Lamson	<i>Randolph</i>	45 M. Converse Hall
Mabel Nelson	<i>Burlington</i>	118 Pearl St.
Mary Crafts Paddock	<i>Craftsbury</i>	84 Colchester Ave.
Katie Lena Russell	<i>Shelburne</i>	51 N. Union St.
Lucy Etta Sawyer	<i>Hyde Park</i>	483 Main St.
Fanny Lydia Smith	<i>Shelburne</i>	51 N. Union St.
Bessie Marian Stewart	<i>Bakersfield</i>	85 Colchester Ave.
Mary Carr Tewksbury	<i>Randolph</i>	411 Main St.
Alice Ruby Whitney	<i>Bethel</i>	35 Colchester Ave.

Engineering Students

Rufus Carl Brown	<i>Burlington</i>	118 N. Union St.
Frederic Percy Byington	<i>Charlotte</i>	27 Buell St.
John Alden Chase	<i>Randolph</i>	42 M. Converse Hall
Robert Dudley Emery	<i>Montpelier</i>	21 S. Converse Hall
Edward Pierson Hendrick	<i>Springfield, Mass.</i>	5 S. Converse Hall
George Jean Holden	<i>Burlington</i>	387 S. Union St.
Edwin Ellsworth Miller	<i>Newport</i>	47 S. Converse Hall
Robert Bass Morton	<i>Randolph</i>	42 M. Converse Hall
Henry Bigelow Oatley	<i>Rochester, N. Y.</i>	19 George St.
Charles Haswell Parker	<i>Burlington</i>	325 S. Union St.
Byron Adams Robinson	<i>Bellows Falls</i>	55 Loomis St.

Chemical Students

Frank Williston Clark	<i>Williston</i>	22 S. Converse Hall
Harry Henderson Greene	<i>Burlington</i>	27 Loomis St.
Alvin Mitton Taylor	<i>Burlington</i>	76 Chase St.
Edward Chapman Wright	<i>Burlington</i>	16 Grant St.

Agricultural Students

NAME	RESIDENCE	ROOM
Edward George Bridgeman	<i>Hardwick</i>	Exp. Farm
Elmore Robert Calderwood	<i>Craftsbury</i>	20 Exp. Station
John Eugene Finn	<i>Randolph</i>	18 Exp. Station
Alpheus Breed Frizzell	<i>Canaan</i>	17 Exp. Station
Justin Amasa Frizzell	<i>Canaan</i>	17 Exp. Station
Albert Ebenezer Hurlbut	<i>Georgia</i>	Exp. Farm
Aldace Walker Newton	<i>Wallingford</i>	18 N. College
Roy Homer Reynolds	<i>Georgia</i>	Exp. Farm
Clarence Willard Richmond	<i>Newport</i>	46 N. Winooski Ave.
James Thatcher Seaver	<i>Quechee</i>	20 Exp. Station
Jacob Kingsley Shaw	<i>Northfield</i>	19 Exp. Station
Arthur C. Wells	<i>Bakersfield</i>	17 Exp. Station
Byron Eugene White	<i>Hardwick</i>	19 Exp. Station

Special Students

Martha Davis	<i>Island Pond</i>	35 Colchester Ave.
Emily Wheelock Lucia	<i>Montpelier</i>	489 Main St.

Partial Students

Loyal Harry Bradford	<i>N. Ferrisburgh</i>	5 S. Converse Hall
Clara Louise Gillette	<i>Hartford</i>	411 Main St.
Clara Blanche Johnson	<i>Burlington</i>	36 Converse Court

GENERAL STATEMENT OF INSTRUCTION

Instruction is given in the University in :

I. The Department of Arts, which embraces :

1. The usual Classical course in the Languages, ancient and modern, Mathematics, Physical Science, Mental, Moral and Political Philosophy, Rhetoric, Literature and History, leading to the degree of Bachelor of Arts ;

2. The Literary-Scientific course, in which the studies of the Classical course are pursued with the exception of Greek, and which leads to the degree of Bachelor of Philosophy.

II. The Scientific Departments, embracing the studies required (1) by the Morrill Act of 1862, which provides that instruction be given not only in "Classical and other Scientific studies," but especially in "branches of learning relating to Agriculture and the Mechanic Arts;" and (2) by the Endowment Act of 1890, which provides for instruction in "Agriculture, the Mechanic Arts, the English Language, and the various branches of Mathematical, Physical, Natural and Economic Science, with special reference to their applications in the industries of life."

These Departments are :

1. The Department of Engineering, which includes (a) Civil and Sanitary Engineering ; (b) Electrical Engineering ; (c) Mechanical Engineering.

2. The Department of Chemistry.

3. The Department of Agriculture.

The degree in each case is Bachelor of Science; see Index, *degrees*.

III. The Department of Medicine, leading to the degree of Doctor of Medicine.

ADMISSION

Candidates for admission to the University must produce satisfactory testimonials of good moral character and must be at least fifteen years of age.

Students coming from another College must present a certificate of regular dismissal from the institution they have left, and furnish satisfactory evidence of proficiency in all the studies—or their equivalents—which have been pursued by the class they propose to enter. For admission to an advanced class, a corresponding increase in age is required, and a thorough knowledge of all the studies which have been pursued by the students of the same class.

Young women are admitted to all courses in Arts and Science upon the same conditions as young men. They are required to room and board in families approved by the Faculty.

REQUIREMENTS FOR ADMISSION TO THE CLASSICAL DEPARTMENT

Greek. (1) Greek Grammar, including Prosody; (2) Xenophon's *Anabasis*, four books; (3) Homer's *Iliad*, three books; (4) Woodruff's *Greek Prose Composition*; (5) Translation at sight.

Latin. (1) Latin Grammar, including Prosody; (2) The first thirty lessons in Jones's *Latin Prose Composition*; (3) *Cæsar*, four books; or *First Latin Readings* by Arrowsmith and Whicher; (4) *Cicero*, six orations and the *De Amicitia*; (5) *Virgil*, six books of the *Æneid* and the *Eclogues*.

In the case of Latin and Greek authors, substitutes will be accepted if full equivalents for the work here prescribed.

Teachers are urgently requested to give their pupils practice in reading at sight. They are also urged to have their pupils read aloud *in both Greek and Latin* as much as possible, that the ear may be trained to the sound of the language, and that the words may gradually come to convey a meaning to the pupil's mind immediately and not through their English equivalents.

In the pronunciation of Greek, the rules of Hadley and Allen's *Grammar*, pp. 4, 5, 7, should be followed. The "Roman" method of pronouncing Latin is used in the class room.

Mathematics. (1) Arithmetic, including the metric system ; (2) Algebra, through Quadratic Equations; (3) Plane Geometry.

English. (1) English Grammar; (2) Orthoepey; (3) English Composition, to be based for 1896 upon the following works :

Shakspeare's Merchant of Venice and Macbeth; Milton's L'Allegro, Il Penseroso, Comus and Lycidas; Longfellow's Evangeline; Macauley's Essay on Milton; Webster's first Bunker Hill oration; Irving's Sketch Book; Scott's Woodstock; George Eliot's Silas Marner.

In 1897 upon the following :

Shakspeare's Merchant of Venice and As You Like It; Scott's Marmion; Longfellow's Evangeline; Macauley's Essay on Addison; Irving's Tales of a Traveller; Hawthorne's Twice Told Tales; George Eliot's Silas Marner; Addison's Sir Roger de Coverley Papers in the Spectator.

History. (1) Ancient and Modern Geography; (2) Ancient History; (3) Greek History to Alexander; (4) Roman History to Augustus.

The examination in history will be based upon the Students' Series for the East and Greece, and upon Leighton's or Allen's Rome.

LITERARY-SCIENTIFIC COURSE

The requirements for admission to the Literary-Scientific course are the same as for the Classical course, except that in place of Greek an equivalent in French, or in German, or in some one of the Sciences will be required.

SCIENTIFIC DEPARTMENTS

The Mathematics, English and Geography as specified in the requirements for the Classical department are required for admission to the Scientific departments, except that for entrance to the Engineering department both *Plane and Solid Geometry* are now necessary. This department will probably soon make the further requirement of Higher Algebra. For admission to the Chemical and Medical departments, consult the fuller statements of these departments.

Examinations for admission will be held in the College Building at the close and at the opening of each college year. See Calendar.

ADMISSION BY CERTIFICATE

Candidates will be admitted to any of the above Departments *without examination*, in case they bring Certificates of Graduation from Preparatory Schools whose courses of study fully meet the above requirements. If the certificate is defective in respect to any required study, the student will be examined in that study. Certificates must be made out on blank forms furnished by the Secretary of the faculty. Students admitted by certificate will be regarded as being on probation during the first half-year.

ADMISSION OF SPECIAL STUDENTS

Persons of suitable age and attainments may, by special permission of the Faculty and by the payment of a specified fee, pursue certain studies in connection with the regular college classes without becoming matriculate members of the University. The classes which are open to such students, with the conditions of admission, will be made known upon application to the President. Special Students are members of the University from the time of their admission, but are not candidates for a degree. They enjoy the privileges of the University and are subject to all its regulations.

REGISTRATION

Every student upon entering the University is required to present his papers to the President on the Tuesday preceding the opening of the annual session. Upon approval, he will receive from the President a Certificate of Admission. On the following Saturday the student is to deliver his certificate to the Registrar, and to enter his name upon the University Register. He will receive from the Registrar a Certificate of Registration which is to be delivered to the Treasurer, whereupon he becomes entitled to pay the entrance fee of ten dollars. The Treasurer's receipt is to be returned to the Registrar for record, after which the student will be considered a regular member of the University.

COURSES OF INSTRUCTION*

GREEK

1. Lysias, Selections.—Plato, Apology and Crito.—Homer, Odyssey, four books.—Prose Composition, based upon the prose read in the course.

Required, Freshman year, four hours.

2. Euripides, Medea. — Demosthenes, Olynthiacs.—Aristophanes, Birds.—Sophocles, Oedipus Tyrannus.—Prose Composition, based upon the prose read in the course.

Elective for Sophomores, three hours.

[Candidates for Sophomore Honors are required to read in addition about 4000 to 5000 lines. The authors may be selected by the students, subject to the approval of the instructor.]

3. The History of Greek Literature.—The rise and development of the various forms of Greek Literature will be treated briefly, in lectures. The aim of the course is to encourage the students to read, both in the class and privately, selections from as wide a field of Greek Literature as possible.

Elective for Juniors and Seniors, three hours.

4. Aeschines, Against Ctesiphon.—Demosthenes, On the Crown.—Aeschylus, Seven against Thebes.—Sophocles, Antigone.—Aristophanes, Frogs.

Elective for Juniors and Seniors, two hours.

PROFESSOR HOWES

LATIN

1. Livy.—Tacitus.—Horace, Odes.—Prose Composition.

Required, Freshman year, four hours.

2. Cicero.—Plautus.—Terence.—Horace, Epistles and Satires.

Elective for Sophomores, three hours.

*When not otherwise specified, courses run through the year.

3. Quintilian.—Pliny, Letters.—Juvenal.—Persius.

Elective, open to those who have taken courses 1 and 2.

4. Catullus.—Lucretius.—Seneca.—Latin Hymns.

Elective, open only to those who have taken course 3.

PROFESSOR GOODRICH

ENGLISH

1. Rhetoric, English Composition, and Etymology.—Elementary Course.—Text-books, Hill's Principles of Rhetoric, and Trench on the Study of Words.

Required, Freshman year, two hours.

2. Criticism and Composition.—Study of Invention and of selected prose masterpieces.—Text books, Genung's Practical Rhetoric and Rhetorical Analysis.—Constant drill in composition.—Weekly lectures upon the History of English Literature, with Stopford Brooke's Primer as a manual.

Required, Sophomore year, three hours.

3. English Literature from the Restoration to the Present Day.—Lectures and Seminary work upon the poets and important literary movements of the last two centuries.—Lectures upon the History and Principles of English Versification.

Elective, three hours.

4. Anglo-Saxon.—Training in early linguistic forms and in development of English.—Literary study of Anglo-Saxon poetry.—Text book, Bright's Anglo-Saxon Reader.

Elective, two hours, first half-year.

5. Chaucer.—Supplementary to 4.—Further study of linguistic development.—Chaucer's poetry.—Collateral reading in the works of his contemporaries.

Elective, two hours, second half-year.

6. **Shakspeare and his Contemporaries.**—Elizabethan Drama, lectures and collateral reading. Literary study and textual interpretation of selected plays of Shakspeare.—Text books, Macmillan Shakspeare, Rolfe's Editions, and Dowden's Primer. A study of the non-dramatic poetry of the period will complete the course.

Elective, three hours.

7. **American Literature.**—The greatest writers of the country and century will be studied. Lectures, reports, and collateral reading. Text book, Beers' Outline Sketch of American Literature.

Elective, two hours.

[Courses 6 and 7 will be given in 1895-96; courses 3, 4, and 5 in 1896-97. This alternation will enable the student, by a proper choice of electives, to trace through its entire history the linguistic growth and the literary development of English.]

PROFESSOR TUPPER

Members of the Freshman and Sophomore classes are required to deliver two selected declamations during the year. Juniors are required to debate twice during the year, and Seniors are required to deliver two original orations, or to write four essays during the year.

FRENCH

1. **Elementary French.**—Grandgent's Short French Grammar and French Lessons and Exercises; Dufour's French Reader. During the second half-year, the following texts will be read: Halévy, l'Abbé Constantin; Daudet, Contes choisis; Coppée, le Luthier de Crémone, and, for sight reading, Labiche, le Voyage de Monsieur Perrichon. Practice in composition and conversation throughout the year.
Alternative for Literary-Scientific Freshmen and for Classical Sophomores with German 1: four hours.

2. **French Prose and Poetry of the Nineteenth Century.** This course is divided into two parts :

a. **The French Writers of the First Half of the Nineteenth Century.** After a study of the selections in Bernardin's *Morceaux Choisis de Classiques Français du XIXe Siècle*, the following texts are read : Victor Hugo, *Hernani*; Sandeau, *Mademoiselle de la Seiglière*; Alfred de Musset, *Extraits Choisis* ; Balzac, *Eugénie Grandet*. Practice in writing French.

b. **The French Writers of the Present Day.** The first text-book used is Mellé's *Contemporary French Writers*. Later, the following texts are read : Bornier, *la Fille de Roland*; Pailleron, *le Monde où l'on s'ennuie* ; Bourget, *Extraits Choisis*; Zola, *la Débacle*. Practice in French conversation.

Elective, three hours.

[Course 2 extends through two years. Part a will be given in 1896-97. Students electing the complete course will read, in addition to the works above specified, Duval's *Histoire de la Littérature Française*. Candidates for Sophomore Honors are required to pass a satisfactory examination upon Bonnefou's *les Écrivains Modernes de la France*, and selected parts of Pellissier's *le Mouvement Littéraire au XIXe Siècle*.]

3. **General History of French Literature from the Middle Ages to the French Revolution.** This is an advanced course, open only to those who have had two years of French in College. The following are the text books used : Lanson's *Histoire de la Littérature Française*, Petit de Julleville's *Morceaux Choisis des Auteurs Français au Moyen Age et Seizième Siècle*; Ploetz's *Manuel de Littérature Française*; and Barrère's *Comparative French Grammar and Idioms*.

Elective, two hours.

[Work for Senior Honors is arranged in connection with course 3.]

4. **Introduction to the Study of French Philology.** Whenever a sufficient number of students desire it, a course will be

given in Old and Middle French and the elements of Historical French Grammar. This course demands a good working knowledge of Modern French and German.

PROFESSOR KITCHIN

ITALIAN

1. Elementary Italian.

a. First half-year, Grandgent's Italian Grammar; Montague's Italian Reader; Manzoni, *I Promessi Sposi*.

b. Second half-year. Dante: *La Vita Nuova*, entire, and *La Divina Commedia*, selected cantos.

Elective to students who have had at least one year of French in college, two hours.

2. Advanced Italian. Tasso, *la Gerusalemme Liberata*, selected cantos; Alfieri, *Oreste*; Goldoni, *Il Vero Amico*; Castelnovo, *Novelle Scelte*. Grandgent's Italian Composition. *Two hours.*

[Courses 1 and 2 are given alternately. Course 1 is offered for 1896-97.]

3. Introduction to the History of Literature and the Fine Arts in the South of Europe—Italy, France, and Spain—during the Middle Ages and the Renaissance.

Elective for Sophomores, Juniors, and Seniors, two hours.

[This course will be given the year that there is no class in French 4. It is offered for 1896-97. In taking it, a working knowledge of French will be found helpful but not absolutely necessary.]

PROFESSOR KITCHIN

GERMAN

1. Elementary Course. Joynes-Meissner, German Grammar with written exercises; Brandt's German Reader; *Gedichte*, Goethe, Schiller, Heine; Goethe's *Hermann und Doro-*

thea. Exercises in conversation based on the systems of Rosenthal, Stein, Meissner, etc.

Alternative for Literary-Scientific Freshmen and for Classical Sophomores with French 1; open also to Juniors; four hours.

2. a. Composition: Joynes-Meissner, Grammar (part third) with written exercises and exercises in conversation. Schiller, *Die Jungfrau von Orleans*, *Die Piccolomini*, *Wallensteins Tod*. Goethe, first part of *Faust*.

- b. Lectures. (1) Outlines of German Literature from Lessing to the death of Goethe. (2) Historical and critical Introduction to the First Part of *Faust*.

Elective, three hours.

3. Introduction to the Study of Goethe. Lectures entirely in German. (1) *Ueber Goethe's Leben*. (2) *Studien über die Leiden des jungen Werthers*, *die Iphigenie auf Tauris* und den zweiten Theil von *Faust*,—*Einleitung und Kritik*. (3) *Grundlinien der Goetheschen Weltanschauung*. *Werther* and the *Iphigenie auf Tauris* with selections from the second part of *Faust* will be read in the class. Collateral reading: Tasso, *Egmont*, and selections from the *Dichtung und Wahrheit*.

Elective, two hours.

PROFESSOR HUFF

PHILOSOPHY

1. Elementary Course.—Brief general Introduction to Philosophy, in lectures.—Logic; text-book, Minto's *Logic Inductive and Deductive*.—Ethics; text-book, Murray's *Introduction to Ethics*.

Required, Junior year, three hours.

2. Advanced Course.—Psychology; lectures and text-book; Höffding's *Outlines of Psychology*.—Fundamental Problems

of Philosophy, lectures, theses and discussions.—Theism ; text-book, Flint's Theism.

Elective, Senior year, three hours.

3. History of Philosophy.—Lectures and text-books; Zeller's Outline of the History of Greek Philosophy, Falckenberg's History of Modern Philosophy.

Elective, Senior year, three hours.

4. Metaphysics.—Lectures and text-book; Watson's Philosophy of Kant, in Extracts.

Elective, Senior year, first half, two hours.

5. Fine Art.—Lectures and text-book; J. Torrey's A Theory of Fine Art.

Elective, Senior year, second half, two hours.

PROFESSOR TORREY

HISTORY

1. General History. A rapid review of Ancient and Classical History; a more detailed study of Mediæval History from the Fall of Rome to the Reformation. Text-book, Fisher's Outlines of Universal History. Lectures, daily recitations with constant practice in investigation, and theses. *Required, Sophomore year, four hours.*
2. French History. The growth of Royalty from the earliest times to its culmination in the Absolute Monarchy; l'Ancien Régime. The second half is devoted to the Revolution, its causes, progress and results, its significance for modern history. Lectures, frequent tests, theses. Hand-book, Duruy. *Elective for Juniors, three hours.*
3. English History. English institutions from Magna Charta to the Cabinet; the origin, growth, contest and final establish-

ment of Parliamentary Government. Lectures, frequent tests, theses. Hand-book, Gardiner's Student's History. *Elective for Seniors and Juniors, three hours.*

PROFESSOR EMERSON

SOCIOLOGY

An historical investigation of the origin and constitution of primitive society; its transformation in the municipal stage and subsequently; the basis of modern society; the state; the economic, political and social forces operative in modern society; recent transformations; the goal. Lectures, constant investigation and discussion, theses. *Elective for Seniors, two hours, with one hour of collateral reading.*

PROFESSOR EMERSON

POLITICAL SCIENCE

1. Political Economy.—Text-book, F. A. Walker's Advanced Political Economy. Lectures and discussions. *Required, three hours.*
2. Constitutional History; Cooley's U. S. Constitution.—Comparative Constitutional Law; lectures and collateral readings. International Law; Woolsey's International Law the basis of instruction.—Political Economy, applied to open questions by lectures and discussions. *Elective, two hours.*

PRESIDENT BUCKHAM

MATHEMATICS

1. a. Algebra.—Arithmetical and Geometrical Progression, Convergence and Summation of Series, Binomial and Exponential Theorems, Logarithms and a brief introduction to the theory of Equations. Text-book, Wells' College Algebra. Five hours a week for fifteen weeks.
- b. Solid Geometry. Text-book, Chauvenet's Geometry. Five hours a week for nine weeks.
- c. Plane Trigonometry.—Text-book, Wells' Plane and Spherical Trigonometry. Five hours a week for thirteen weeks.
Required of all Freshmen.

PROFESSOR SLOCUM

2. a. Review of Analytical Trigonometry, followed by Analytical Geometry, with lectures on the Synthetical Geometry of Conics and on Higher Plane Curves.
- b. Elements of Differential and Integral Calculus.—Text books and lectures.
*Required of students in the Engineering Department.
Elective for others, four hours.*
3. a. Integral Calculus and Astronomy.
- b. Differential Equations.
Three hours.
4. a. Analytical Geometry of three dimensions.
- b. Methods used in the solution of Geometrical problems of construction and Introduction to Modern Projective Geometry.
Three hours.

Course 4 this year is on the Geometrical Function Theory, with a sketch of the theory of Elliptic Functions and Integrals.

Courses 2, 3 and 4 are elective for academic students.

Courses 2 and 3 are required of students in Engineering.

PROFESSOR DANIELS

The Honor Examinations for the Sophomore year will be on the geometrical and algebraical study of complex numbers, with De-moivre's Theorem and the Theory of Equations

A candidate for Senior Honors may choose his subject from studies in Analytical Geometry, Modern Geometry, Higher Algebra, Differential Equations, Mathematical Physics.

PHYSICS

1. General Physics.—Mechanics, Properties of Matter, Heat, Sound, Light, Electricity and Magnetism. Experimental lectures and oral recitations. Abstract of lectures will be put in the hands of students. Those electing this course should be familiar with the elements of Trigonometry.
Required of Chemical and Engineering Sophomores.
Four hours a week.

Next year this course will consist of lectures two hours a week with laboratory work twice a week.

- [2. Advanced Laboratory Course :—Experiments chosen to suit the needs of those taking the course. Hours arranged with those electing the course.]
- [3. Special Course in Light:—Preston's Theory of Light and Basset's Physical Optics used as basis of lectures. Lectures two hours a week ; laboratory work twice a week.
Elective for those who have taken the course in Analytical Geometry and Calculus.]
- [4. Special Course in Heat :—Maxwell's or Preston's Heat and Poincare's Thermodynamique used as basis of lectures. Lectures three hours a week ; laboratory work once a week.]
- [5. Special Course in Electricity and Magnetism. — Emtage's or Nipher's Electricity and Magnetism used as basis of

lectures. Lectures two hours a week ; laboratory work twice or three times a week.]

Courses 4 and 5 are elective for those who have taken or are taking the course in Integral Calculus and Differential Equations.

[6. Mathematical Physics :—Methods of solving the Differential Equations of Physics with application to problems in Mechanics, Sound, Heat, and Electricity. Text-books used as basis of lectures :—Forsythe's Differential Equations, Rieman's Partielle Differentialgleichungen, Walton's Collection of Problems in Mechanics, Donkin's Acoustics, and Fourier's Analytical Theory of Heat. Lectures four hours a week.

Elective for those who have had courses in Calculus and Differential Equations.]

[Courses enclosed in brackets are not given this year. Next year courses 1 and 2, and two of the courses 3, 4, 5, 6, will be offered.]

PROFESSOR SLOCUM

NATURAL SCIENCE

1. Physiology and Hygiene.—Lectures.
Required, Freshman year, one hour.
2. Physiology, Advanced Course.—Recitations and Lectures.—
Martin's Human Body.
Elective, Junior year, one hour.
3. Elements of the Biology of Animals.—Lectures and laboratory work.
Elective for students who have taken Chemistry 1 a, second half-year, three hours.
4. Advanced Biology of Animals.—Laboratory work in the study of Vertebrate Morphology.
Elective for students who have taken course 3, four to twelve hours.

5. Entomology.—Lectures and Laboratory course in Structural and Systematic Entomology, with special reference to insects which are injurious to vegetation.
Second half-year, two hours.
6. Anthropology.—Lectures.
Elective, open to Juniors and Seniors, first half-year, three hours.
7. Geology.—Recitations and lectures,—Le Conte's Elements.
Elective, open to Juniors and Seniors, second half-year, three hours.

PROFESSOR PERKINS

8. Elements of Structural and Systematic Botany (Flowering Plants)
One recitation or lecture and two laboratory exercises per week.*
Required of Sophomores in the Agricultural Department, elective for others, three hours.
9. Elements of Biology of Plants.—A study of a few typical species of plants with reference to structure, physiology, development and relationship. One recitation and two laboratory exercises per week. Text-book, Parker's Elementary Biology.
Required of Juniors in the Agricultural Department; open to others who have taken Chemistry 1 a, first half-year, three hours.

[This course with four laboratory exercises per week may be elected as 9 a.]

10. Photographic Methods in Botany.
Advanced course, first half-year, one hour.
11. Field-work in Botany.—A study of the local flora by means of lectures and field excursions. This class will be limited

*In laboratory work two hours count as one.

in size and is open only to students who have taken course 8 or its equivalent, and by special permission of the instructor.

Elective, second half-year, one hour.

12. Physiology of Plants.—Lectures, laboratory work and collateral reading.

Open only to those who have taken courses 8 and 9; elective, second half-year, three hours.

[Students intending to take two years' work in Botany should elect course 8 in the Sophomore year, if possible, and courses 9 and 12 in the Junior year.]

13. Vegetable Pathology.—A study of the nature and causes of plant diseases. This course is offered under two heads:

- a. Lectures, collateral reading, and demonstrations, the economic parts of the subject being especially considered.

Required of Seniors in the Agricultural Department, two hours, first half-year.

- b. Includes the work of 13a and also laboratory and research work upon bacteriology and mycology.

Advanced course, elective, three hours.

PROFESSOR JONES

14. Mineralogy, Descriptive and Determinative.—Dana's Manual of Mineralogy.

Required of Engineering and Chemical students, and open to Classical students who have taken Chemistry 1; first half-year, three hours.

PROFESSOR LOOMIS

Candidates for honors may select from some department of Biology, Geology, or Anthropology, a subject for special and original investigation, which must be carried on under the direction of the Instructor; the results must be presented at the close of Senior year in the form of a thesis.

ENGINEERING

DRAWING

1. a. Elementary Projections.
 Five hours, until December.
- b. Descriptive Geometry.
 Five hours, December until April.
- c. Shades and Shadows.
 Five hours, April until June,
- d. Pen Topography and Lettering.
 Eight hours, second half-year.
2. a. Linear Perspective.
 Four hours, until December.
- b. Shading and Coloring.
 Four hours, December until February.
- c. Isometrical Projections.
 Four hours, February until April.
- d. Detail Working Drawings of Machines.
 Five hours, first half-year.
- e. Construction of Gear Teeth.
 Four hours, second half-year.
- f. Spherical Projections.
 Four hours, April until June.
3. a. Mapping Surveys.
 Ten hours, first half-year.
- b. Analysis of Valve Gears, and Steam Engine Details.
 Four hours, first half-year.
- c. Stone Cutting.
 Two hours, second half-year.
- d. Structural Drawing.
 Six hours, second half-year.
4. a. Problems in Designs.
 Four hours, second half-year.

- b. Detail Drawing and Design.
Four hours, first half-year.

SURVEYING

- 1. a. Use of Instruments : Compass, Level and Transit ; Land Surveying ; Recitations and Field Work.
Four hours, second half-year.
- b. Summer School of Surveying : Land Surveying, Traversing, Levelling and Topographical Surveying.
One month in the summer vacation.
- 2. a. Computing and Plotting the Work of the Summer School.
Three hours, first half-year.
- b. City Surveying : Solar Compass and Transit; Recitations, Lectures and Field Work.
Three hours, second half-year.
- c. Summer School of Surveying: Geodetic, Hydrographic and Topographical Surveying.
One month in the summer vacation.
- 3. a. Computing and Mapping the work of the Summer School.
Three hours, first half-year.
- b. Railroad Surveying : Recitations and Field Work.
Three hours, second half-year.

MECHANICS

- 1. a. Forces and Motion. Recitations.
Five hours, until December.
- b. Stresses in Roof and Bridge Trusses. Recitations.
Five hours, December until April.
- c. Strength of Materials : Theory of Flexure and Torsion.
Recitations.
Five hours, April until June.
- 2. Hydrostatics and Hydraulics. Recitations.
Four hours, until April.

3. Graphical Statics : Study of Arches, Domes and Retaining Walls.
Five hours, first half-year.
4. Advanced Bridge Work. Lectures and Recitations.
Three hours, second half-year.

CIVIL ENGINEERING

1. Materials, their properties, preparation and use.
 - a. Limes, Cements, Mortars, Brick and Stone. Lectures.
Two hours, first half-year.
 - b. Timber, Iron and Steel. Lectures.
Two hours, second half-year.
2. a. Foundations of Structures on Land and in Water.
Lectures.
Two hours, until December.
 - b. River Improvements : Harbor and Canal Construction :
Railway Construction and Equipment. Lectures.
Two hours, December until second half-year.
 - c. Construction of Roads, Streets and Pavements. Lectures,
Recitations and Field Work.
Three hours, second half-year.
8. Contracts and Specifications. Lectures.
Two hours, first half-year.

SANITARY ENGINEERING

1. Water Supply, Sewerage, general principles of Plumbing and Heating, with details of construction. Lectures.
Three hours, second half-year.

PROFESSOR BARBOUR
PROFESSOR VOTEY

MECHANICAL ENGINEERING

1. a. Elements of Mechanism.
 Three hours, first half-year.
- b. Gearing and Machine Tools.
 Three hours, second half-year.
2. a. Valve Gears and Thermodynamics.
 Four hours, first half-year.
- b. Thermodynamics; Boilers, Pumps and Injectors.
 Four hours, second half-year.
- c. Laboratory Work ; Engine and Calorimeter Tests.
 Two hours, second half-year.
3. a. Dynamics of Machinery.
 Three hours, first half-year.
- b. Motors and the Transmission of Power.
 Three hours, second half-year.
- c. Machine Design.
 Four hours, entire year.
- d. Laboratory Work ; Boiler, Pump and Power Tests, and
 Strength of Materials.
 Two hours, second half-year.

SHOP-WORK

1. Carpentry.
 Two hours, second half-year.
2. a. Wood Turning and Pattern Making.
 Two hours, first half-year.
- b. Pattern Making, Molding and Founding.
 Two hours, second half-year.
3. a. Forging of Iron and Steel.
 Three hours, first half-year.
- b. Chipping, Filing and Lathe Work.
 Three hours, second half-year.

4. Machine Shop Work.*Three hours, entire year.***PROFESSOR AYER
MR. EATON**

ELECTRICAL ENGINEERING**1. a. Physics.—Electricity and Magnetism.***Three hours, second half-year.***PROFESSOR SLOCUM****b. Electrical Laboratory.—Elementary measurements.***Two hours, second half-year.***2. a. Theory of the Dynamo.—Magnetic Circuit and Induction.***Two hours, first half-year.***b. Dynamo Practice.—Construction and Operation of Dynamo-Electric Machinery.***Two hours, first half-year.***c. Electrical Laboratory.—Tests of Efficiency and Regulation.***Three hours, first half-year.***3. a. Theory of the Dynamo.—Characteristic Curves and Compound Windings.***Three hours, second half-year.***b. Dynamo Practice and Design.—Types of direct current Dynamos and Motors.***Three hours, second half-year.***c. Electrical Laboratory.—Determination of Characteristic Curves.***Three hours, second half-year.***4. a. Theory of Alternating Currents; Circuits containing Resistance and Self-induction.***Three hours, first half-year.***b. Electric Lighting and Power Transmission.***Three hours, first half-year.*

- c. Electrical Laboratory; measurement of alternating currents.
Two hours, first half-year.
- a. Theory of the Transformer; alternating current commercial apparatus.
Two hours, second half-year.
- b. Electric Railways, electro-metallurgy, cable-laying, law of initial cost, specifications, etc.
Three hours, second half-year.
- c. Electrical Laboratory; plotting current curves, and original investigations.
Four hours, second half-year.

PROFESSOR STORRS

CHEMISTRY

- 1. a. General Chemistry.—Lectures.
Four hours, first half-year.
 - b. Laboratory work.—Elementary Experiments and Elementary Qualitative Analysis.
Four hours, second half-year.
Elective for students in the Classical department.
- 2. Qualitative Analysis.—Advanced Course: Laboratory work, with lectures and recitations.
Ten to fifteen hours, one half-year.
- 3. Quantitative Analysis.—Laboratory work, with class meetings for discussion of methods.
Fifteen hours, one year or longer.
- 4. Stoichiometry.—Lectures.
Two hours, one half-year.
- 5. Industrial Chemistry.
 - a. Assaying.—Ores, furnace products, etc.
Six hours, one half-year.

- b. Lectures.—Inspection of constructional plans of works, with occasional excursions to manufacturing establishments, when such may be made conveniently.
One half-year. Hours to be assigned.
- 6. History of Chemistry.—Lectures.
About eight weeks, one hour.
- 7. Organic Chemistry.
 - a. Lectures.—Theory and Synthesis of Carbon Compounds.
One year, two hours.
 - b. Laboratory work—Preparation of compounds, analyses, etc.
 - c. Commercial Organic Analysis.—Lectures.
Two hours, one half-year.

[Courses 7. a. and 5. b. are given in alternate years.]

Practical use of the Spectroscope is offered to students who are qualified for that order of work, at some convenient time during the four years.

PROFESSOR MERRILL
MR. STEARNS

AGRICULTURE

- 1. Soils, Fertilizers, Tillage and Drainage. Text-book, King's The Soil. Lectures, recitations and collateral reading.
Five hours, first half-year.

PROFESSOR HILLS
- 2. a. Farm Economics; general and special crops. Lectures and recitations.
Three hours, second half-year.

- b. Grasses, botanic and economic characteristics. Lectures and laboratory work.

One hour, second half-year.

PROFESSOR JONES

8. a. Stock Feeding ; animal nutrition, fodders and feeds, feeding standards and rations. Lectures, recitations and collateral reading.

Four hours, first half-year, until December.

- b. Dairying. Lectures, laboratory work and recitations.

Twelve hours, first half-year, January (session of the Dairy School.)

PROFESSOR HILLS

8. Stock Breeding , Breeds of Live Stock. Text-book , Miles' Stock Breeding. Lectures, recitations and laboratory work (scoring cattle).

Four hours, second half-year.

DR. RICH

5. Agricultural Experimentation. A critical study of principles, methods and work of American and Foreign Agricultural Experiment Stations. Lectures, seminary work and research in preparation for thesis.

Two hours, first half-year.

PROFESSOR HILLS

HORTICULTURE

1. Market Gardening and Floriculture.

Three hours, first half-year.

2. Fruit Culture, Landscape Gardening and Forestry.

Three hours, second half-year.

VETERINARY SCIENCE

1. Comparative Anatomy of Domestic Animals. Text-book, Strangeway's Anatomy. Lectures and recitations. *Two hours, first half-year.*
2. Comparative Physiology of Domestic Animals. Text-book, Kirk's Human Physiology. Lectures and recitations. *Three hours, second half-year.*
3. Histology. Text-book, Kirk's Human Physiology. Lectures and recitations. *Two hours, first half-year.*
4. Diseases of Domestic Animals; Theory and Practice of Veterinary Medicine. Lectures, recitations and clinics. *Three hours, second half-year.*

DR. RICH

CLASSICAL DEPARTMENT

FACULTY

MATTHEW H. BUCKHAM, D. D., *Political and Social Philosophy.*

HENRY A. P. TORREY, A. M., *Intellectual and Moral Philosophy.*

GEORGE H. PERKINS, Ph. D., *Zoology, Botany and Geology.*

JOHN E. GOODRICH, A. M., *Latin.*

SAMUEL F. EMERSON, Ph. D., *History.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

ARCHIBALD L. DANIELS, Sc. D., *Mathematics.*

LEWIS J. HUFF, *German.*

WILLIAM C. KITCHIN, Ph. D., *French and Italian.*

FREDERICK TUPPER, Jr., Ph. D., *Rhetoric and English.*

ALLISON WING SLOCUM, A. M., *Mathematics.*

GEORGE E. HOWES, Ph. D., *Greek.*

CAPT. HERBERT E. TUTHERLY, A. M., *Military Science and Tactics.*

REQUIRED AND ELECTIVE STUDIES

I. Candidates for the degree of A. B., after pursuing a required course of Greek, Latin, Mathematics, English and Hygiene through the Freshman year, are allowed to elect a certain number of their studies, the number increasing in the later years of the College course until the Senior year, when all studies, except those of the Military department, are elective. Each student is required to take such a number of electives as will bring his total work up to fifteen recitation or lecture hours per week, not including those of Military Drill. The abuse to which a system of perfectly free electives is liable is avoided by the requirement of a certain number of studies which are intended to secure some completeness and symmetry of discipline, while the number of electives permitted gives room for the development of special talents and the following out of individual predilections. The electives are offered in such a way as to permit extended study of any subject or group of subjects of which the student may

wish to make a specialty. For example, Greek, Latin, English and Mathematics may be pursued through most of the time during the four years; French and German each for three years; Physical Science, History, and the Social, Intellectual and Moral Sciences, for from two to three years.

The electives embrace studies in Greek and Latin; French and German, including studies in Comparative Literature; the higher Mathematics, including Calculus and the New Geometry; History; Political and Social Science; English Literature; Chemistry, theoretical and applied, with Laboratory work; Geology; Botany; Zoology; Biology; Anthropology; Metaphysics; the History of Philosophy; the Theory of Fine Art.

Other subjects, in which classes are likely to be small, like Anglo-Saxon and Italian, will be offered occasionally, at such intervals as to give all students an opportunity to take them at some time during their college course.

II. Candidates for the degree of Ph. B. will have the same required courses and the same electives as candidates for the degree of A. B., except that, omitting Greek, they will begin the study of French and German one year earlier and will select in the second year from the more advanced electives.

III. Persons who may desire to take a short academic course preparatory to the study of medicine may take the first two years of the course leading to the degree of Ph. B., with any of the electives of the entire department for which they have the requisite preparation.

IV. Students in any of the other departments may, by special permission of the Faculty, take a limited number of electives from the Engineering and Chemical Departments.

V. It is assumed that the choice of electives will be made by the student with reference to some clear, deliberate purpose, and as the result of consultation with members of the Faculty. In all cases the natural sequence of studies must be observed. The Faculty reserve the right to exclude a student from any course for which his previous studies have not properly prepared him.

The studies pursued and taught in the Classical department are divided into seven sections :

Languages, Mathematics, Natural Science, History, Rhetoric and English Literature, Social and Political Science, Moral and Intellectual Philosophy.

THE CHOICE OF ELECTIVES

The studies of Freshman year are all prescribed. For Classical students they are: *Greek, Latin, Mathematics, English and Hygiene*; for Literary-Scientific students Greek is replaced by *French*.

With Sophomore year the system of Elective studies begins. It is designed to start students upon those different paths which lead to specialization in different branches. It is important therefore that studies should be chosen with a view to a definite goal. The Prescribed studies of Sophomore year are *English, History, and one modern language*. The Elective studies of Sophomore year are *Greek, Latin, Elementary German, Elementary or Intermediate French, Mathematics, Chemistry, Botany*. If Classical studies are the goal, Greek or Latin should be chosen, and German would be a valuable accessory. If it is the aim to emphasize the Literary studies, German and French should be elected. Mathematics is the best preparation for the physical sciences, and Chemistry and Botany for Biology.

Every student should endeavor to secure a working knowledge of at least one modern language, and *no language should be pursued for less than two years*.

The studies of Junior year should continue the lines elected in Sophomore year, and the studies of Senior year should complete the same, but opportunity should be secured for the enrichment presented in the Philosophical, Political, Social and Historical studies.

In this way a relatively high degree of specialization may be combined with the advantage of liberal studies.

No student, however, will be allowed to enter a course when in the opinion of the instructor his previous studies have not properly prepared him for it.

The requirement of Military instruction has recently been extended so as to include Seniors.

DEPARTMENT OF ENGINEERING

FACULTY

MATTHEW H. BUCKHAM, D. D., President, *Political Science*.

VOLNEY G. BARBOUR, Ph. B., C. E., *Bridge Construction and Mechanics, and Dean of Faculty*.

GEORGE H. PERKINS, Ph. D., *Natural History*.

JOSIAH W. VOTEY, C. E., *Civil Engineering*.

LEWIS J. HUFF, *German*.

WILLIAM C. KITCHIN, Ph. D. *French*

HARRY A. STORRS, C. E., *Electrical Engineering*.

ARTHUR W. AYER, B. S., *Mechanical Engineering*.

NATHAN F. MERRILL, Ph. D., *Chemistry*.

HORATIO LOOMIS, Sc. D., *Mineralogy*:

ARCHIBALD L. DANIELS., Sc. D., *Mathematics*.

FREDERICK TUPPER, JR., Ph. D., *English Language and Literature*.

ALLISON W. SLOCUM, A. M., *Physics*.

CAPT. HERBERT E. TUTHERLY, A. M., *Military Science and Tactics*.

JAMES EATON, *Shop Work*.

CIVIL ENGINEERING

Instruction is given by means of lectures, recitations and work in the field and drawing-room. Technical essays are required at frequent intervals on topics connected with the various subjects as they are taken up. Excursions will be made by the classes to engineering works and work-shops for the study of details and methods of construction.

The subjects pursued comprise:

Mathematics, including algebra, geometry, plane and spherical trigonometry, analytical geometry, and the elements of differential and integral calculus; *General Chemistry*, *Botany*, *Astronomy*, *Physics*, *Geology*, *Mineralogy*, *French*, *German*, *Political Economy* and *English*.

Mechanics, including analytical and graphical determination of stresses in the various kinds of roof and bridge trusses, of the thrust and stability of arches and retaining walls, and of the flow of water in pipes and open channels. For the field work in hydraulics the department is equipped with triangular and rectangular wiers, floats and current meters, which are used by the students in determining the flow of streams.

Drawing, embracing general projection drawing, isometric, perspective, and topographical drawing, shading and coloring, spherical projections and map drawing, plans of surveys, ornamentation and lettering, and the detail and working drawings of structures in wood, iron and stone. This work is carried on throughout the entire four years.

Engineering Construction, including the general properties of building material, as stone, cements, mortar, brick, wood and the metals, the construction of foundations in water and on land, and of superstructures and tunnels, of railroads, canals, water works, drainage and sewerage works, and the improvement of harbors and rivers. In connection with the study of materials, tests of the strength of cements, wood, stone, iron and steel are made. For this work the department has a 2,000 pound Riehle cement tester, a 50,000 pound Riehle general testing machine, with a Henning & Marshall electric micrometer, and a 200,000 pound Olsen automatic and autographic machine, fitted with a long transverse bed for beam testing. The facilities for experimental investigations have been largely increased by the recent construction of a new laboratory for this work.

Surveying, both theory and practice. The theory of instruments, and all the operations of surveying, laying out work, and computing, are explained in detail. The Summer School of surveying affords abundant opportunity for becoming familiar, by actual work in the field, with the methods of work and the use and adjustment of the instruments.

Highway Engineering. The general principles of the location and building of country roads and city streets are first treated, fol-

lowed by the construction in detail of Macadam and Telford roads and the various forms of street pavements. Visits are made to quarries, stone crushing plants, and roads in process of construction. The engineering laboratory has a complete equipment for testing road material.

Sanitary Engineering, including the subject of sewerage, sewage disposal, water supply, the plumbing, heating and ventilation of buildings.

Attention is also given to the preparation of *Specifications* and *Contracts*.

In bridge work the theory of stresses, and the details of construction of the various classes of bridges are taken up. Drawings and blue prints of recent constructions from leading bridge companies are used to illustrate modern practice in this work.

The Library and Reading Room are well furnished with engineering literature, the reading room being supplied with many of the American and foreign engineering periodicals.

The special studies of the department may be taken as a graduate course, occupying two years. Young men who are so situated as to be unable to take full work, but who would be glad to receive instruction in special branches, may, by permission of the President, and on giving evidence of sufficient preparation, join the classes in those studies, but they cannot be candidates for a degree.

SUMMER SCHOOL OF SURVEYING

The Field Work in surveying is carried on mainly at the Summer School of Surveying. This school is located each year near one of the large bays of Lake Champlain and the session occupies one month of the summer vacation. Attendance upon this course is required of the students in Civil Engineering in the Sophomore and Junior classes, and permission to attend may be granted to students from any other class or department. Any young man not a member of the University, if properly fitted for the work, will be admitted to the school upon application.

For any member of the University there is a fee of five dollars for incidental expenses, and for any one not a member, in addition to this, a tuition fee of twenty dollars.

Text-books and books of reference.—Searle's and Henck's Field books; Johnson's Surveying; Clarke's Geodesy; Haupt's Topography; Wright's Adjustment of Observation; Merriman's Least Squares; Weisbach's Mechanics of Engineering; Lanza's Mechanics; Rankine's Civil Engineering; Latham's Sanitary Engineering; Fanning's Water Supply; Merriman's Hydraulics; Smith's Hydraulics; Burr's Elasticity and Resistance of Materials; Thurston's Materials of Engineering; Johnson's Modern Framed Structures.

FRESHMAN YEAR

FIRST HALF-YEAR. *Mathematics*.—Geometry and Algebra, five hours. *Chemistry*.—Lectures, four hours. *Drawing*.—Elementary Projections and Descriptive Geometry, five hours. *English*.—Rhetoric, Composition, two hours. *Hygiene*.—Lectures, one hour.

SECOND HALF-YEAR. *Mathematics*.—Trigonometry and Surveying, five hours. *Descriptive Geometry and Shades and Shadows*, five hours. *Drawing*.—Topography and Lettering, four hours. *Hygiene*.—Lectures, one hour. *English*.—two hours. *Surveying*.

VACATION

Summer School of Surveying, one month.

SOPHOMORE YEAR

FIRST HALF-YEAR. *Mathematics*.—Analytical Geometry and Calculus, four hours. *Spherical Trigonometry*.—two hours. *Physics*.—four hours. *German*.—three hours. *Drawing*.—Shading and Tinting, and Perspective, four hours. *Surveying*.

SECOND HALF-YEAR. *Mathematics*.—Calculus, four hours. *Astronomy*.—two hours. *Physics*.—four hours. *German*.—three hours. *Drawing*.—Isometrical Projections and Spherical Projections, four hours. *Surveying*.

VACATION

Summer School of Surveying, one month.

JUNIOR YEAR

FIRST HALF-YEAR. *Mathematics*.—Integral Calculus, three hours. *Mechanics*.—Forces and Motion; Stresses in Bridge and Roof Trusses, five hours. *Drawing*.—Mapping of Surveys, three hours. *Mineralogy*.—three hours. *Engineering Construction*.—Materials of Construction, two hours.

SECOND HALF-YEAR. *Mechanics*.—Stresses in Bridge and Roof Trusses; Strength of Materials; Theory of Flexure, five hours. *Engineering Construction*.—Materials of Construction, two hours. *Railroad Engineering*.—Lectures and Field Work, three hours. *Geology*.—three hours. *Drawing*.—Stone Cutting, Structural Drawing, three hours.

SENIOR YEAR

FIRST HALF-YEAR. *Mechanics*.—Hydrostatics and Hydraulics, four hours. *Graphical Statics*.—Study of Arches, Domes and Retaining Walls, five hours. *Contracts and Specifications*.—two hours. *Engineering Construction*.—Foundations, Railroads, Canals, River and Harbor works, two hours. *Drawing*.—Detail Drawing and Designing, two hours.

SECOND HALF-YEAR. *Highway Engineering*.—Roads, Streets and Pavements, three hours. *Sanitary Engineering*.—Water supply, Sewerage, Plumbing, Heating and Ventilating, three hours. *Mechanics*.—Advanced Bridge Work, three hours. *Mathematics*.—Least Squares, Higher Surveying and Practical Astronomy, three hours. *Theses*.

MECHANICAL ENGINEERING

The instruction in Mechanical Engineering aims to give the student such a training as will enable him to become a successful designer of machinery, or to approach from the best standpoint any

problem relating to the generation, transmission or application of power. The ground work of this training is given by means of recitations and lectures covering the general theory and practice of the subjects treated, and these are supplemented by extended courses in the drawing-room and workshops, and in the engineering laboratory.

No strictly professional subjects are taken up in the Freshman year, but much time is devoted to mathematics and drawing, these being considered the most important factors in the work of the following years. The Sophomore year is devoted to the more elementary subjects of the profession, such as elementary combinations in machines, gear-tooth construction, and the mechanism of machine tools. The Junior year is devoted almost wholly to steam engineering, and the Senior year to machine design and to advanced and special lines of professional work. Outside the department, instruction is given in English, German, the higher mathematics, chemistry, physics and general mechanics.

Shop Equipment. The carpenter and pattern shop contains, in addition to twelve carpenter benches, and a full line of tools for manual work, six wood-turning lathes, an eighteen inch pattern-maker's lathe, circular saw, and scroll saw. The foundry is supplied with a cupola furnace, brass furnace, core-oven and accommodations for six students in moulding. The forge shop contains eight forges and anvils, a hand drill, a punching and shearing machine, and all the hand tools necessary for instruction in this branch. The machine shop is equipped with filing and chipping benches, four engine lathes, two hand lathes, a planer, a shaping machine, two upright drills, a milling machine, a grinding machine, and emery wheels.

Mechanical Engineering Laboratory. A twenty-five horse-power Harris-Corliss engine, which also provides power for the shops, a smaller vertical engine, and a fifty horse-power tubular boiler are available for engine and boiler tests. A surface condenser and air pump may be used in connection with the engine during tests. The laboratory contains also two steam pumps, a twelve-inch weir with

hook-gauge, a friction brake, indicators and planimeters, several calorimeters, a steam injector arranged for testing, a steam-gauge tester, apparatus for measuring the flow of steam, and numerous minor pieces of apparatus used in connection with these.

FRESHMAN YEAR

FIRST HALF-YEAR. *Mathematics*.—Algebra and Solid Geometry, five hours. *Chemistry*.—Lectures, four hours. *Drawing*.—Elementary Projection and Descriptive Geometry, five hours.—*English*.—Rhetoric and Composition, two hours. *Hygiene*.—Lectures, one hour.

SECOND HALF-YEAR. *Mathematics*.—Trigonometry and Surveying, five hours. *Drawing*.—Descriptive Geometry, five hours. *Chemistry*.—Laboratory, two hours. *English*.—two hours. *Hygiene*.—one hour. *Shopwork*.—Carpentry, two hours.

SOPHOMORE YEAR

FIRST HALF-YEAR. *Mathematics*.—Analytical Geometry, four hours. *Mechanical Engineering*.—Elementary Mechanism, three hours. *Drawing*.—Details of Machines, and Making of Blue Prints, one hour. *Physics*.—Lectures, four hours. *Elementary German*.—three hours. *English*.—one hour. *Shopwork*.—Wood-turning and Pattern Making, two hours.

SECOND HALF-YEAR. *Mathematics*.—Calculus, four hours. *Mechanical Engineering*.—Mechanism, Gear Teeth and Machine Tools, three hours. *Drawing*.—Details of Machines, and Construction of Gear Teeth, two hours. *Physics*.—Heat and Electricity, lectures, three hours. *German*.—three hours. *Shopwork*.—Pattern Making, Moulding and Founding, two hours.

JUNIOR YEAR

FIRST HALF-YEAR. *Mathematics*.—Integral Calculus, three hours. *Mechanical Engineering*.—Valve Gears and Thermodynam-

ics, four hours. *Mechanics*.—General Statics, Roof and Bridge Trusses, five hours. *Drawing*.—Analysis of Valve Gears, and Steam Engine Details, two hours. *Shopwork*.—Forging, three hours.

SECOND HALF-YEAR. *Mathematics*.—Spherical Trigonometry and Astronomy, three hours. *Mechanical Engineering*.—Thermodynamics, Boilers, Pumps and Injectors, four hours. *Mechanics*.—Strength of Materials, five hours. *Mechanical Engineering Laboratory*.—Engine and Calorimeter Tests, two hours. *Shopwork*.—Chipping, Filing, and Lathe Work, three hours.

SENIOR YEAR

FIRST HALF-YEAR. *Mechanical Engineering*.—Dynamics of Machines, three hours; Machine Design, four hours. *Hydraulics*.—four hours. *Materials of Construction*.—two hours. *Shopwork*.—Machine Shop, three hours.

SECOND HALF-YEAR.—*Mechanical Engineering*.—Motors and the Transmission of Power, three hours. *Mechanical Engineering Laboratory*.—Boiler, Pump and Power Tests, and Strength of Materials, two hours. *Shopwork*.—Machine Shop, Moulding and Founding, three hours. *Theses*.

NOTE.—In the above schedule the "hour" as applied to Drawing, Shopwork and Laboratory is actually of two hours' duration.

ELECTRICAL ENGINEERING

A descriptive statement of the Electrical Engineering course may be found in the bulletins of the Engineering Department. Broadly it may be stated that it is the aim of this course to provide the student with a substantial working knowledge of the fundamental principles underlying all engineering practice, and especially to instruct him as thoroughly as time will permit in the theory and uses of electrical instruments and machines.

Preparatory to the technical subjects are the courses in Mathematics, Drawing and Chemistry; then follow Mechanics, Physics,

Thermodynamics, etc.; and finally Steam Engineering, Hydraulics, Engineering Construction and Electrical Engineering. About one-half the student's time during Junior and Senior years is devoted to the several subjects included under Electrical Engineering, among which are Theory of Electro-Magnetism, Dynamo Practice and Design, Theory of Alternating Currents, the Transformer, Electric Lighting and Power Transmission, Electric Railways, Specifications, etc.

Throughout the course the lecture-room instruction is supplemented by practical work in the shops and laboratories. The dynamo room, electrical laboratory, photometer room, etc., will within a year be transferred from the Engineering Building to the Williams Science Hall where additional facilities for experimental work will be furnished. The present equipment of dynamos, transformers, motors, lamps, batteries and instruments of most approved types for electrical measurements will be judiciously increased from year to year so as to enable each student to become familiar with the construction and operation of the typical apparatus of the Electrical business.

Text-books and books of reference: Jackson's *Electro-Magnetism*, Hawkins and Wallace's "The Dynamo," Thompson's *Dynamo-electric Machinery*, Crosby and Bell's *Electric Railways*, Bedell and Crehore's *Alternating Currents*, Fleming's "The Transformer," Thompson's *Polyphase Electric Currents*, etc. The following are the required studies of the Electrical Engineering course:

FRESHMAN YEAR

FIRST HALF-YEAR. *Mathematics*.—Algebra and Solid Geometry, (5)*. *Chemistry*.—Lectures, (4). *Drawing*.—Elementary Projections and Descriptive Geometry, (5). *English*.—Rhetoric and Composition, (2). *Hygiene*.—Lectures, (1).

SECOND HALF-YEAR. *Mathematics*.—Trigonometry and Surveying, (5). *Drawing*.—Descriptive Geometry, (5). *Chemistry*.—Labor-

*The figures in parentheses indicate the number of exercises per week; exercises consisting of lectures or recitations are fifty minutes long; drawing and laboratory exercises are one hour and fifty minutes long.

atory, (2). *English*.—Rhetoric and Composition, (2). *Hygiene*.—Lectures, (1). *Shop-work*.—Carpentry, (2), or *Surveying*.—Use of Instruments, (2).

SOPHOMORE YEAR

FIRST HALF-YEAR. *Mechanical Engineering*.—Elementary Mechanism, (2). *Mathematics*.—Analytical Geometry, (4). *Physics*.—Dynamics, Acoustics and Optics, (4). *German*, (3). *Shop-work*.—Wood-turning, (2).

SECOND HALF-YEAR. *Mechanism*.—Gear Teeth and Machine Tools, (3). *Mathematics*.—Differential Calculus, (4). *Physics*.—Heat and Electricity, (3). *German*, (3). *Physical Laboratory*, (2). *English*.—Technical Essays, (1). *Drawing*, (2).

JUNIOR YEAR

FIRST HALF-YEAR. *Electrical Engineering*.—Theory and Practice of the Dynamo, (4). *Mechanics*.—General Statistics and Dynamics, (5). *Mathematics*.—Integral Calculus, (3). *German*.—Technical Reading, (2); or *Engineering Construction*.—Materials of Construction, (2). *Electrical Laboratory*, (3).

SECOND HALF-YEAR. *Electrical Engineering*.—Theory of the Dynamo, (3), and Dynamo Practice and Design, (3). *Mechanics*.—Roof and Bridge Trusses, (3), or *Railroad Surveying*, (3). *Technical Essays*, (1). *Electrical Laboratory*, (3). *Engineering Construction*.—Materials of Construction, (2). *Shop-work*.—Forging, Chipping and Filing, (2).

SENIOR YEAR

FIRST HALF-YEAR. *Electrical Engineering*.—Theory of Alternating Currents, (3); Electric Lighting and Power Transmission, (3). *Mechanics*.—Hydraulics, (4). *Steam Engineering*.—Valve Gears and Thermodynamics, (4). *Shop-work*.—Machine Tools, (2). *Electrical Laboratory*, (2).

SECOND HALF-YEAR. *Electrical Engineering*. Theory of the Transformer, (2); Electric Railways, Electrometallurgy and Specifications, (3). *Steam Engineering*.—Engines, Boilers and Pumps, (4). *Mechanical Laboratory*.—Engine and Boiler Tests, (2). *Electrical Laboratory and Thesis Work*, (4).

DEPARTMENT OF CHEMISTRY

FACULTY

MATTHEW H. BUCKHAM, D. D., President.

NATHAN F. MERRILL, Ph. D., *Chemistry*.

HORATIO LOOMIS, Sc. D., *Mineralogy*.

GEORGE H. PERKINS, Ph. D., *Natural History*.

LEWIS J. HUFF, *German*.

WILLIAM C. KITCHIN, Ph. D., *French*.

ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.

FREDERICK TUPPER, Ph. D., *English Language and Literature*.

ALLISON WING SLOCUM, A. M., *Mathematics and Physics*.

HARRY A. STORRS, C. E., *Electrical Engineering, Drawing*.

JOHN B. STEARNS, B. S., *Chemistry*.

CAPT. HERBERT E. TUTHERLY, A. M., *Military Science and Tactics*.

In this Department, the student, after attending about seventy lectures and recitations in General Chemistry, enters the laboratories where he pursues graded and systematic work, beginning with a schedule of experiments illustrating fundamental principles and cultivating familiarity with the common elements and their compounds. From the outset quantitative methods are followed, as far as practicable.

Qualitative Analysis is next studied. The work includes the use of the spectroscope and the examination of commercial products. Lectures and recitations continue through the course.

After the completion of Qualitative Analysis, Quantitative Analysis is begun, the student proceeding through the simpler determinations to more difficult analyses. The course embraces gravimetric and volumetric methods with applications to analysis of commercial products. Occasionally the students meet together and present statements of work done in the laboratory with discussion of methods, etc. In this way, each student may derive benefit from the work done in the laboratory by the entire class.

In the Junior or Senior year Organic Chemistry is taken up, both in the class-room and in the laboratory. This course involves the preparation of organic compounds and their analysis. Students of ability will be encouraged to undertake original investigations under the special supervision of the head instructor.

Lectures are given upon Industrial processes and these lectures are occasionally supplemented with excursions to manufacturing establishments. In the third year facilities are offered, and instruction is given, in Crystallography, Mineralogy, and Assaying of Ores by both fire assay and wet assay. A short course of lectures on the History of Chemistry is given.

During the Senior year instruction is given in those parts of mechanical engineering which have a direct bearing upon the chemical industries. This work includes lectures upon prime movers, boilers and pumps, the elements of machines, and the proportioning of shafting, pulleys and belts, together with some actual practice in the management of boilers and steam engines.

BOOKS OF REFERENCE IN CHEMISTRY.—Graham-Otto's *Lehrbuch der anorganischen Chemie*; Gmelin-Kraut's *anorganische Chemie*; Allen's *Commercial Analysis*; Battershall's *Food Adulteration*; Percy's *Metallurgy*; Eggleston's *Metallurgy*; Lunge's *Sulphuric Acid and Alkali, Coal Tar and Ammonia Industries*; Fresenius's *Quantitative Analysis*; Fresenius's *Qualitative Analysis*; Sutton's *Volumetric Analysis*; Roscoe's *Treatise on Chemistry*; Kolbe's *Lehrbuch der organischen Chemie*; Payen's *Precis de Chemie industrielle*; Wagner's *Chemical Technology*; Ostwald's *Solutions*; Ostwald's *Outlines of General Chemistry*; Blyth's *Composition and Analysis of Foods*; Blyth's *Poisons, Effects and Detection*; Crookes's *Select Methods in Chemical Analysis*; Pattison Muir's *Principles of Chemistry*; Mendeleeff's *Principles of Chemistry*; Sadtler's *Industrial Organic Chemistry*; Peters's *Modern Copper Smelting*; *Chemical Technology*, Groves & Thorpe; *Examination of Medicinal Chemicals*, Hoffman & Power; *Annalen der Chemie und Pharmacie*; Watts's *Dictionary of Chemistry*; *Journal of the London Chemical Society*; *Zeitschrift für*

analytische Chemie; Berichte der deutschen chemischen Gesellschaft. American Journal of Chemistry; Journal of the Society of Chemical Industry; Chemical News.

FRESHMAN YEAR

FIRST HALF-YEAR. *Required Studies*—Chemistry Lectures, four hours. Mathematics, four hours. Drawing, four hours. English, one hour. French, four hours.

SECOND HALF-YEAR. *Required Studies*—Laboratory, six to eight hours. Mathematics, four hours. English, one hour. French, four hours.

SOPHOMORE YEAR

FIRST HALF-YEAR. *Required Studies*—Laboratory, ten to fifteen hours. Physics, four hours. German, four hours. English, two hours. *Elective Studies*—Analytics, three hours. History, four hours. French, four hours.

SECOND HALF-YEAR. *Required Studies*—Laboratory, ten to fifteen hours. Physics, four hours. German, four hours. English, two hours. *Elective Studies*—Mathematics, History or French as in first half-year.

JUNIOR YEAR

FIRST HALF-YEAR. *Required Studies*—Laboratory, including Mineralogy and Blow-pipe Determinations and Assaying, fifteen to eighteen hours. Stoichiometry, two hours. English, two hours. Physiology, one hour. *Elective Studies*—German, three hours. Calculus, two hours.

SECOND HALF-YEAR. *Required Studies*—Laboratory, fifteen to eighteen hours. Commercial Organic Analysis, two hours. English, two hours. Physiology, one hour. *Elective Studies*—German or Calculus as in first half-year.

SENIOR YEAR

FIRST HALF-YEAR. *Required Studies*—Laboratory, fifteen to eighteen hours. Organic Chemistry, lectures, two hours. Machinery and Motors, two hours. English, one hour.

SECOND HALF-YEAR. *Required Studies*—Laboratory. Organic Chemistry, lectures, two hours. Industrial Chemistry. History of Chemistry. Geology, three hours. Theses.

NOTE. The lectures in Organic Chemistry and in Industrial Chemistry are usually given to Juniors and Seniors together, in alternate years.

Certain of the studies of the Senior Year in the Classical department may be optional with a corresponding amount of laboratory work throughout this year.

All the courses in Chemistry are open as electives to such students in the Classical and Literary-Scientific departments as are qualified to pursue them.

It is desirable that applicants for admission to full standing in the Chemical department as candidates for its degree should have had the regular classical course—the usual preparation for college—at some school whose certificates are recognized by this University. In case of deficiency in Latin or Greek or in both of those languages in the preparatory course, the applicant may present himself for examination in French or German or in both; and satisfactory attainments in the elements of these languages will be accepted in lieu of Greek and Latin.

Students showing proper qualifications may be admitted to a special course in Chemistry by permission of the President and of the Professor of the department; but such students cannot receive the degree.

DEPARTMENT OF AGRICULTURE

FACULTY

MATTHEW H. BUCKHAM, D. D., President, *Political Philosophy*.

JOSEPH L. HILLS, B. S., *Agricultural Chemistry*.

VOLNEY G. BARBOUR, Ph. B., C. E., *Surveying*.

GEORGE H. PERKINS, Ph. D., *Natural History*.

NATHAN F. MERRILL, Ph. D., *Chemistry*.

LEWIS R. JONES, Ph. B., *Botany*.

FRANK A. RICH, V. S., M. D., *Veterinary Medicine and Stock Breeding*.

ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.

LEWIS J. HUFF, *German*.

JOSIAH W. VOTEY, C. E., *Surveying and Road Making*.

HARRY A. STORRS, C. E., *Electrical Engineering*.

HORATIO LOOMIS, Sc. D., *Mineralogy*.

WILLIAM C KITCHIN, Ph. D., *French*.

ARTHUR W. AYER, B. S., *Mechanical Engineering*.

FREDERICK TUPPER, Jr., Ph. D., *Rhetoric and Elocution*.

ALLISON W. SLOCUM, A. M., *Mathematics and Physics*.

HEMAN B. CHITTENDEN, A. M., *English*.

F. A. WAUGH, *Horticulture and Agriculture*.

J. C. ROBINSON, *Dairying*.

CAPT. HERBERT E. TUTHERLY, A. M., *Military Science and Tactics*.

The work of the Agricultural Department is intended to give the student both the theoretical and the practical knowledge necessary to make a success of farming, and at the same time to include enough of mathematics, literature, science and philosophy for a good general education.

Agriculture has a leading place in the course for three years. The course in Chemistry given during the Freshman year enables one to gain a more thorough understanding of soils and fertilizers;

while the instruction in Botany, begun in the first half of Sophomore year, prepares the way for the intelligent consideration of general and special crops of all kinds, their values, uses and cultivation.

Stock Feeding and Breeding are taught by lecture and text-book. The students are not only taught the better methods of feeding, but are expected to apply their knowledge in connection with the feeding of the animals at the Station farm. Abundant opportunity for illustration of breeds of live stock and for instruction in scoring animals is afforded at the farm and in the near vicinity.

Exceptional facilities for instruction in dairying are afforded in connection with the Dairy School. Several of the better styles of separators, churns, butter-workers, milk-testers, etc., are in use, and the student becomes familiar with the various systems, and expert in manipulating the apparatus.

A critical study of the principles, methods and work of American and foreign Agricultural Experiment Stations is made, with lectures and seminary work in preparation for, and as a guide to, creditable investigation work for thesis.

Horticulture is taught by lectures and by practical work. The study embraces a year's course in market gardening, floriculture, fruit culture, nursery growing, landscape gardening and forestry. A green-house with four rooms is devoted to commercial vegetable and flower growing, and to the investigation of plant diseases. The students are taught the growing of different crops by the most improved methods, and gain valuable experience in seed planting, transplanting, potting, budding and grafting, and other methods of propagation, both in the house and in the field. They are also taught the handling of hot-beds and forcing houses. The orchard has an assortment of large and small fruits, where students can learn the proper methods of pruning and training.

Veterinary Science is a required study during one-half of the course. The student learns first the general structure of domestic animals by lectures, by the examination of charts and museum specimens, and by the dissection of the animals themselves. The physi-

ology of domestic animals is next studied, then the microscopic structure of the various parts. The common diseases and their remedies are discussed in lectures, and free clinics are held for studying these diseases in the living animals. The subjects of inoculation, disinfection and immunity are considered in connection with the study of contagious diseases.

Botanical subjects are studied during the last three years of the course. The work begins with a careful study of the plant cell as fundamental to an understanding of the structure and the physiology of the flowering plants. In the work upon Systematic Botany especial attention is given to the grasses, the clover family, weed-plants and trees. Following this is a study of typical species of the lower plants (cryptogams), with special reference to their structure, function, development and relationship. Elective courses in Physiology of Plants and in Advanced Biology offer opportunity for further work along similar lines. During the Senior course in Vegetable Pathology a study is made into the nature and causes of plant diseases and the remedies for the same.

The spraying apparatus used in the Experiment Station work, the facilities of the green-house, and collections of dried and alcoholic specimens furnish opportunities for work of a thoroughly practical nature.

An elective course offers opportunity for more extended laboratory study of bacteria and fungi, including preparation and use of nutrient media, pure cultures, etc.

The botanical laboratory is supplied with simple and compound microscopes, paraffin baths, microtomes, ovens, etc., for bacteriological work, and other necessary apparatus and reagents. The herbariums of the University and Experiment Station are open to students who are prepared to use them with profit.

The required work in mathematics includes Solid Geometry, Advanced Algebra, Trigonometry and Land Surveying.

More or less extended courses are required in Chemistry, Biology, Entomology, Mineralogy, Geology, English, and either French or German.

Electives. During the Sophomore year students may elect Mathematics or Modern Languages, and during the last two years students are allowed to select studies under the advice of the instructors from any of the academic departments of the University.

The Library is well supplied with standard works in the various departments of agriculture, and the leading agricultural journals are found in the reading room. Students also have the advantage of the presence of the Agricultural Experiment Station.

Students in the Agricultural department are subject to the same regulations and requirements as other students, except that residents of Vermont are not required to pay tuition. Students in this department, as in others, forfeit their privileges by misconduct or deficient work, and become thereby chargeable with back tuition. There is opportunity for several students to defray a part of their expenses by work.

SHORT COURSE IN AGRICULTURE

Students who do not wish to take the full four years' course may take a special course of one year, or of two years, selecting such studies as they are fitted to pursue. Such students may receive Certificates of Proficiency, but are not candidates for a degree.

FRESHMAN YEAR

FIRST HALF-YEAR. *Veterinary Science*—Comparative Anatomy of Domestic Animals, two hours. *Mathematics*—Algebra and Geometry, five hours. *Chemistry*—Lectures, four hours. *English*—Four hours. *Hygiene*—Lectures, one hour.

SECOND HALF-YEAR. *Veterinary Science*—Comparative Physiology of Domestic Animals, three hours. *Mathematics*—Algebra and Trigonometry, five hours. *Chemistry*—Laboratory, four hours. *English*—Four hours. *Hygiene*—One hour.

SOPHOMORE YEAR

FIRST HALF-YEAR. *Agriculture*—Soils, Tillage and Drainage, Fertilizers, five hours. *Botany*—Three hours. *Veterinary Science*—

Histology, two hours. *English*—Three hours. *Electives*—Mathematics. French or German.

SECOND HALF-YEAR. *Agriculture*—Forage and Root Crops, Grains and Grasses, Special Crops, four hours. *Botany*—Two hours. *Veterinary Science*—Diseases of Animals, three hours. *Surveying*—Two hours. *English*—Three hours. *Electives*—Mathematics, French or German.

JUNIOR YEAR

FIRST HALF-YEAR. *Agriculture*—Stock Feeding, Dairying, four hours. *Horticulture*—Three hours. *Biology*—Three hours. *French or German*, three hours. *Electives*—Physics, Mechanical Engineering, Shop Work, Logic, History, English, Photography.

SECOND HALF-YEAR. *Agriculture*—Stock Breeding, Breeds of Live Stock, four hours. *Horticulture*—Three hours. *Biology*—Three hours. *French or German*—Three hours. *Electives*—Physiology of Plants, Mechanical Engineering, Shop Work, History, Political Economy, English.

SENIOR YEAR

FIRST HALF-YEAR. *Agriculture*—Experimentation, two hours. *Vegetable Pathology*—Three hours. *Mineralogy*—Three hours. *Electives*—Mechanical Engineering, Shop Work, Electrical Engineering, Political Science, Anthropology, French or German, English.

SECOND HALF-YEAR. *Geology*—Three hours. *Entomology*—Two hours. *Original Investigation for Thesis*. *Electives*—English, Mechanical Engineering, Shop Work, Electrical Engineering, Vegetable Pathology, Road Making, Political Science, Sanitary Engineering, French or German.

DAIRY SCHOOL

The fifth annual session of the Dairy School will begin on Thursday, January 9, 1896, and close on Wednesday, February 5th. The school is designed to teach in a practical manner the manufacture of butter with the latest and most approved apparatus. Two courses

aggregating about forty-five lectures will be given on the constitution and production of milk, its creaming and churning, best methods of handling, testing, etc. Actual work with dairy machinery under creamery conditions is given each day. Fifty students, being the entire number which can be accommodated, were registered three months before the opening of the school. In addition to the regular students, several hundred visitors usually witness operations and inspect apparatus.

STUDENTS IN THE DAIRY SCHOOL

J. A. Alexander, Guilford Centre	A. E. Johnson, Newbury
W. E. Allen, Milton	B. J. Kidder, Bradford
C. C. Ballard, Bakersfield	Will Kidder, E. Enosburgh
Theophile Blair, S. Franklin	A. L. Knight, Underhill
H. A. Bliss, Underhill	W. S. Lackie, S. Ryegate
D. F. Blood, E. Thetford	C. W. McBride, Underhill
G. C. Blossom, E. Hardwick	S. B. McFeeters, Sheldon Springs
E. G. Bridgman, Middlebury	E. A. Mitchell, Glover
Chas. Briggs, Bakersfield	G. E. Morse, Brookline
L. B. Bullock, Guilford Centre	H. B. Munson, Morrisville
F. H. Bump, Benson	J. F. Niles, Derby
Victor Burt, W. Enosburgh	M. A. Nott, Burlington
Herbert Chamberlain, Ryegate	Edwin Orcutt, Bristol
C. A. Choate, Jr., Barnet	E. W. Orvis, S. Starksboro
F. W. Coburn, Enosburgh Centre	M. L. Osgood, Newfane
L. Easton, Brandon	C. C. Perry, Benson
C. F. Eddy, Moretown	M. W. Reynolds, Georgia
F. E. Eldred, E. Enosburgh	A. M. Rice, N. Cambridge
John Farnham, Wardsboro	N. J. Ring, Guilford
A. E. Fletcher, Hortonville	F. H. Shepardson, Richmond
Oscar Gates, Ludlow	F. M. Small, Morrisville
Burr Harwood, Rupert	W. E. Tatro, S. Franklin
W. W. Holbrook, Townshend	Alex. Terrien, Richmond
L. B. Hutchins, S. Burlington	F. P. Viall, Wardsboro
R. F. Jaynes, Ryegate	S. L. Ward, Corinth

SPECIAL COURSE FOR STUDENTS OF MEDICINE.

Arrangements are made between the Academic and Medical departments by which a candidate for the degree of A. B. or Ph. B. may count certain Medical studies of the first year as equivalents for part of his last year's Academical studies, and in this way may abridge by one year the time necessary for taking his degrees in both departments.

In response to a demand for a Short Course preparatory to the study of medicine, for the benefit of those who are unable to take a full college course, the following schedule, including with some of the studies of a general course the sciences which have special applications in medicine, is proposed, subject to modifications to suit individual needs and preferences.

FIRST YEAR

Mathematics, five hours a week ; Chemistry, four hours ; Biology, three hours ; English, two hours ; French, German, or Latin, four hours.

SECOND YEAR

Physics, three hours ; Comparative Anatomy and Physiology, three hours ; Biology, three hours ; English, three hours ; History, two hours ; French, German or Latin, three hours.

Students who successfully pursue this course may receive a Certificate of Proficiency, but will not be entitled to a degree.

MILITARY INSTRUCTION

In accordance with an Act of Congress, an officer of the United States Army is stationed at the University as Professor of Military Science and Tactics, and all male students, except those in the Medical department, are required to take part in military drill and instruction three hours each week. A neat, inexpensive uniform is worn during drill.

The drills take place twice a week and are so conducted as to afford healthful exercise, which, while not severe, tends to develop an erect figure and carriage. A building 150 by 70 feet is used as an armory, and a course of military gymnastics is combined with the drills. The military discipline, though enforced only during the hours of drill, is designed to develop soldierly honor, and those ideas of promptness, order and obedience to lawful authority which are applicable to all callings in life.

The theoretical instruction is given to each class once a week by recitations, lectures, and practical work. It embraces, besides the Drill Regulations of the U. S. Army, the elementary principles which govern the art of war, such as officers of a volunteer army should be conversant with upon first being called into the field.

A Military Band of sixteen pieces was organized in 1894. This meets twice a week for practice under the skillful direction of Mr. George D. Sherman. The band not only supplies music for military ceremonies, but serves to a limited extent as a school of instrumental music.

Students are marked as in other courses of instruction, and upon the graduation of each class, the names of those students who have shown especial aptitude for military service are reported to the United States War Department and to the Adjutant General of the State, and the names of the three most distinguished students in Military Science and Tactics are inserted in the United States Army Register.

MILITARY ORGANIZATION

The students are organized into a battalion, consisting of four companies and a band. The officers are taken from the Senior class, the sergeants from the Junior class, and the corporals from the Sophomore class.

The following is the Roster of officers and non-commissioned officers for the present year :

MAJOR

Thomas H. Canfield, jr.

CAPTAINS

- | | |
|----------------------|---------------------|
| 1. Robert Hazen | 4. Sydney F. Weston |
| 2. Joseph T. Stearns | 5. Norris D. Blake |
| 3. Frank P. Bingham | |

LIEUTENANT AND ADJUTANT

Harry DeW. Giddings

LIEUTENANT AND QUARTERMASTER

Frank R. Wright

LIEUTENANTS

- | | |
|---------------------|---------------------|
| 1. John H. Buffum | 3. George M. Sabin |
| 2. George S. Miller | 4. Alfred B. Cutter |

SERGEANT-MAJOR

Frederick B. Willard

FIRST SERGEANTS

- | | |
|---------------------|-----------------------|
| 1. Robert M. Walker | 3. Henry W. Clark |
| 2. Charles F. Clark | 4. George E. P. Smith |

SERGEANTS

- | | |
|--------------------|------------------------|
| 1. George M. Hogan | 3. Lawrence B. Hayward |
| 2. Harlow F. Hyde | |

CORPORALS

- | | |
|----------------------|----------------------|
| 1. Merton C. Robbins | 5. Harris H. Walker |
| 2. Perley O. Ray | 6. William J. Forbes |
| 3. Roy L. Patrick | 7. Peer P. Johnson |
| 4. Julius S. Turrill | |

REGULATIONS

ABSENCES

1. The absences of students shall be in charge of a Committee of the Faculty.

2. Students in all departments of the University, with the exception of those in the Medical Department, are required to attend Prayers in the Chapel on all mornings when they have a college exercise at the first hour.

3. Students not in their seats at Chapel when the bell ceases tolling will be marked absent.

4. A student's unexcused absences from Chapel exercises must not exceed ten per cent. of the whole number of the exercises which he is obliged to attend under § 2. Such unexcused absences shall be treated as those specified in §§ 7 and 8.

5. Excuses for absence will in general be granted only for sickness, and for absence incurred by students who are obliged wholly or in part to support themselves, while actually engaged in work for such support.

6. The number of unexcused absences which are allowed in any subject during the half-year shall be the same as the number of exercises held weekly in that subject. Thus in a two-hour course, two absences will be allowed during the half-year; in a three-hour course, three absences, etc.

7. A student whose unexcused absences during a half-year exceed the number allowed in § 6 shall be placed on probation, and his parent or guardian shall be notified of his delinquency. A student who is placed on probation shall not be allowed to take part in the work of any students' organization which represents the University, such as the Base Ball Nine, the Glee Club, etc., nor shall he attend the convention of any secret society or other organization meeting out of town.

8. A student who, after being placed on probation, shall incur further unexcused absences from required exercises in the same study in which he has been delinquent, shall be suspended on vote of the Absence Committee for a period of not less than ten days. While under suspension a student, if he live away from Burlington, shall be required, in case the Absence Committee so direct, to return to his home. If his home be in Burlington, he shall be required to absent himself from the University grounds.

9. No student absent from an examination without leave shall be allowed to take a subsequent examination in that subject except by a special vote of the Faculty. Application for such leave of absence must be presented in writing to the Absence Committee previous to the examination.

10. No student may be absent from Burlington, when such absence involves failure to attend any required exercise, without the permission of the Absence Committee ; and leave of absence for the purpose of attending the exercises of any students' organization must also be obtained beforehand from the Committee.

11. After a Recess, work will be resumed with the first afternoon exercise.

12. For one day before and after a Recess each absence shall count as two.

13. Excuses for absence must be put in writing, dated and signed, and deposited with the Secretary of the Absence Committee. In case of sickness, the Committee may require the certificate of a physician.

No student will be permitted to join or continue as a member of any athletic, musical, or other similar college organization unless he maintain a fair standing in all the studies of his course. The membership of such organizations shall be subject to the approval of the Status Committee.

ATHLETICS

1. No athletic contest shall take place before four o'clock in the afternoon on any day but Saturday.

2. All arrangements or schedules for contests to take place out of Burlington must be submitted for approval to the Athletic Committee.

3. No athletic organization shall be absent for more than three consecutive college days exclusive of Saturday.

4. At least two weeks before an opening contest, the manager of any athletic organization shall submit to the Athletic Committee for its approval a list of candidates for the team.

EXAMINATIONS

At the close of each half-year students are examined in the studies of that half-year. The examinations are written, or oral, or both, at the discretion of the Instructor. A record is kept of the results of these examinations and a transcript of each student's record is sent to his parent or guardian.

Students who fail in the regular examination in any subject will be allowed to take a re-examination in that subject one year from the time of failure. Students who fail in the re-examination will cease thereupon to be candidates for a degree.

In case of Seniors, all delinquencies up to the close of Junior year, must be made up by the end of the first half of Senior year. Those who fail to make up their delinquencies by that time will cease thereupon to be candidates for a degree.

Students who are taking full work, but are not candidates for a degree, are ranked as Special students. Those who are taking a single study, or studies requiring less than the full number of hours per week, are ranked as Partial students. Special students are subject to the same regulations and have the same privileges as students who are candidates for a degree. Partial students have the privileges only of the classes which they attend, but may be admitted to the Library and Reading Room on payment of the required fee.

RELIGIOUS SERVICES

The institution, while not connected with any particular denominational body, and having members of many communions in its Board of Instruction, aims to impress religious truths and obligations upon all students. A Responsive Religious Service is held every morning in the College Chapel, which the students are required to attend.

A flourishing Young Men's Christian Association of students is maintained, and is in close union both in sympathy and co-operative work with the Young Men's Christian Association of the city. The young women of the University also maintain a similar organization. The numerous churches of the place give to the students hospitable welcome to their services and activities. A voluntary Bible Class of students is conducted by the President on Sunday afternoons in the College building.

HONOR EXAMINATIONS

FOR SENIORS

For the benefit of Students who wish their names to appear on the Honor List [see below] at graduation in recognition of extra work done by them in some special subject or subjects, special Honor Examinations will be held shortly before Commencement in the following subjects: Greek, Latin, French, German, English, History, Philosophy, Political Science, Mathematics, Biology, Chemistry, Physics, Mechanics.

It is required that any student who desires to present himself for this examination shall make written application to the Faculty not later than November 1st. A candidate before presenting himself for examination must have taken all the regular courses offered in the subject in which he is to be examined. He must further have passed the Sophomore Honor Examination [see below] in that subject, if such examination shall have been held, unless specially excused. A candidate must also show *general* good standing in all his work.

FOR SOPHOMORES

Sophomores who wish their names to appear on the Honor List at Commencement will present themselves for the special Honor Examinations held shortly before the close of the academic year in the following subjects: Greek, Latin, French, German and Mathematics.

It is required that any student who desires to present himself for this examination shall make written application to the Faculty not later than November 1st. A candidate before presenting himself for examination must have taken all the regular courses offered in the subject in which he is to be examined, unless specially excused, and he must have attained a high rank in those courses. This examination shall be open also to Juniors.

The amount and nature of the extra work specially covered by any Honor Examination shall be determined by the instructor who has it in charge. It is required that the student attain a high standard of excellence at the examination.

In place of and as equivalent to an Honor Examination the instructor may, if he pleases, accept a Thesis from a student upon some subject which shall have been assigned.

HONOR LIST

There shall be published on the morning of Commencement Day in each year an Honor List containing (1) the names of students who attain grade A in three-fourths* of their work throughout the college course and do not fall below grade B in anything; and (2) the names of students who pass the special Senior Honor Examination offered in any subject. Further, in case a student shall attain grade A in three-fourths of his work and shall not fall below grade B in anything, and in addition shall pass the special Senior Honor Examination offered in any subject, he may be awarded *Double Honors*.

*The reckoning shall be made on the basis of the rank report for each half-year.

The Honor List shall contain also the names of students who pass the special Sophomore Honor Examination offered in any subject. It shall contain further the names of all from the several classes to whom prizes have been awarded during the year, and the names of those appointed to speak on Commencement Day. To this list may be added the names of those who, for these occasions, have presented essays of unusual merit, but who for any reason have not been appointed to deliver them in public.

The Honor List will be published on the bulletin board, in the Billings Library, and in the annual catalogue, and copies will be printed for sale.

DEGREES

For the degrees of Bachelor of Arts and Bachelor of Philosophy, see page 24.

DEGREES IN SCIENCE

The Degree of Bachelor of Science *in Civil Engineering*, or in *Electrical Engineering*, or in *Mechanical Engineering*, is conferred upon students in the Engineering department who shall complete the courses of study corresponding respectively to these titles.

The Degree of Bachelor of Science *in Chemistry* is conferred upon the completion of the work required by the department of Chemistry.

The Degree of Civil Engineer may be conferred upon Bachelors of Science of this University, who have taken the Bachelor's degree for work in Civil Engineering, if they furnish satisfactory evidence that they have pursued further technical studies for at least one year, and in addition have been engaged in professional work in positions of responsibility for another year.

The first of the above requirements may be satisfied by pursuing at the University, under the direction of the Faculty, a prescribed amount of study for a time, not necessarily consecutive, equivalent to a college year. If the candidate does not reside at this University, his course of study must be approved in advance by the Profes-

sor of Civil Engineering, and he must prepare a satisfactory thesis on some engineering topic, to be presented, together with a detailed account of his professional work, one month at least before the date of the annual Commencement at which he expects to receive his degree.

The conditions upon which the Degrees of Electrical Engineer and Mechanical Engineer are conferred upon Bachelors of Science of this University, who have taken these degrees for work done in Electrical Engineering and Mechanical Engineering, are analogous in character and in amount to those given for the degree of Civil Engineer.

In the Agricultural Department the degree is Bachelor of Science *in Agriculture*.

THE DEGREE OF MASTER OF ARTS

1. The degree of Master of Arts may be conferred upon resident graduates of one year's standing of this or any other reputable college, and upon non-resident graduates of two years' standing of this University, who shall pursue a course of liberal study (not professional) subject to the approval of the Faculty.

2. Candidates for the A. M. degree shall be required to present a thesis upon some branch of liberal study pursued since graduation, and to pass an examination before the Faculty.

3. The thesis must be presented at least two months before Commencement, and be approved before the candidate shall be admitted to examination.

4. The thesis must be written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of authors consulted. A copy of the same shall be deposited in the University Library.

5. The examination shall be both written and oral, and copies of examination papers shall be kept on file at the University Library. The examination shall be conducted by a committee of the Faculty, who shall appoint the time and place of examination, decide upon the

merits of the candidate, and, if they deem him worthy, recommend him to the Trustees for graduation.

THE DEGREE OF DOCTOR OF PHILOSOPHY

The degree of Doctor of Philosophy is conferred, not for proficiency in miscellaneous studies, nor for the faithful discharge of prescribed work within a given period, but solely as certification of attested ability for independent investigation.

The object in offering the degree is to encourage original research into some branch of learning and to develop the ability to go to the sources of knowledge in Science, Literature, Art or Philosophy, and to establish upon the authority of the sources some noteworthy truth.

It will be absolutely necessary therefore for the candidate to give evidence of this power by the original treatment of a suitable subject in a written thesis, and by creditably sustaining a critical examination, both written and oral, in one principal and one subsidiary subject.

The degree may be conferred upon resident and non-resident candidates alike, but only after a three years' course of study under competent direction and subject to the approval of the Faculty.

The University offers no regular graduate courses, but members of the Faculty will superintend the work of candidates for the degree who may wish to pursue their studies at the University.

Further requirements are as follows :

1. All college graduates are eligible for the degree, but a ready working knowledge of French and German will be indispensable in all, and of Latin in most cases.

2. The thesis must be presented by the opening of the second half-year in February, and must be approved before the candidate shall be admitted to examination.

3. The thesis must be legibly written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of the authors consulted. A copy of the thesis shall be deposited in the University Library.

4. The fee for the degree is \$25.

Resident candidates will be charged in addition an annual tuition fee of \$100. Non-resident candidates will be charged, for verification of thesis and examination, \$75.

Students who are not candidates for a degree may be awarded Certificates of Proficiency in recognition of the work which they have done.

EXPENSES

The Tuition Fee is \$60 per annum, one-half, \$30, payable at the close of each half-year.

An annual Fee of \$20 for incidental expenses is charged against all students, one-half payable at the close of each half-year.

This fee is a commutation sum for charges formerly made under several headings, and *does not include charges for breakage, damages, etc.*, which are assessed upon the perpetrators, or, when they are unknown, upon the whole body of students.

Every student upon entering the University is required to pay a Registration Fee of \$10. The payment of this completes the requirements for admission, and is in lieu of the first half-yearly installment of the annual fee.

All students pursuing Laboratory courses are required to pay for material and breakage. This fee varies, but has averaged in the department of Chemistry \$15, of Mineralogy \$5, and of Mechanics \$5, for the half-year.

Each student pays an annual fee of \$2 for supplying the Reading Room with periodicals.

An ordinary Scholarship cancels the amount of the tuition fee, and a State Scholarship both the tuition and the annual fees. But no student shall have his scholarship credited upon his bills while his college work is in arrears or while any charges stand against him on the Treasurer's books.

A fee of \$8 is charged for the Diploma given at graduation, and a fee of \$5 for a Certificate of Proficiency.

PAYMENT OF BILLS

Interest at the rate of six per cent. will be charged upon all bills from the day on which they are due. No student will be advanced from class to class, or admitted to graduation, until all arrearages are settled to the satisfaction of the Treasurer.

Students temporarily absent from the University are charged as if present. Students entering an advanced class are required to pay one-half of the back tuition, unless from another college.

ROOMS AND ROOM RENT

Room rent in the old College Dormitories ranges from \$15 to \$37.50 per year, according to the location of the room and the number of the occupants. This does not include fuel and lights.

The students' rooms are furnished at the expense of the University. Students need to provide only carpets, mattresses, bed clothing and chamber ware. The beds are furnished with wire mattresses. All rents include care of room by college servants.

THE CONVERSE HALL

The Converse Hall, erected during the past year, is an elegant and substantial four-story edifice in the collegiate-gothic style, built of Rutland marble, furnishing handsome suites (single and double) for about ninety students. It is heated by steam, finished throughout in hard wood and supplied with all necessary furniture in oak. There is a fireplace in each study and all the rooms can be lighted by electricity. Each of the three sections is supplied with bathing facilities, and one of them contains a Common Room for general uses. Besides the furniture supplied in the old dormitories, the bedrooms here are furnished with hair mattresses, bolster, pillow, and blankets. Rents for single suites range from \$15.00 to \$80.00 ; for double suites, from \$35.00 to \$70.00 for each occupant. All rooms are cared for by college servants.

The fine old mansion on Main street, lately occupied by Mr. Lawrence Barnes, and formerly by Gov. Van Ness, has been purchased

and fitted up for a Home for the young women students. It is surrounded by ample grounds and commands a delightful prospect. The household is under the supervision of a matron and a housekeeper.

Good board with room may be obtained in private families at \$3.50 to \$5.00 a week. Other expenses, for clothing, traveling, books, stationery, society and class taxes, etc., vary with the circumstances and habits of the student. Students in the Chemical department pay \$15.00 each half-year for chemicals, gas, etc. Other students, who elect the Chemical Laboratory Course, pay half this fee. Each must pay for his own breakage.

The Central Vermont railroad carries students for fare at mileage rates.

THE WILLIAMS SCIENCE HALL

Begun in June, 1894, and just completed, is a fire-proof structure of granite, brick, steel and artificial stone, with rich terra cotta decoration. It is of three stories, with a well lighted attic available for laboratory work, and a basement also adapted to the uses of the Scientific departments. It is supplied with the latest and best devices for heating and ventilation and for practical laboratory work, and will be at once fitted up for the occupancy of the Chemical, Physical, Electrical and Biological sections of the University.

BOARDING HALL

There is a Commons Hall on the College grounds at which good table board is furnished to students at cost. The rate of board at present is \$2.50 per week, with a special discount to those who pay in advance.

SCHOLARSHIPS

Scholarships, affording aid to students of limited means, to the amount of tuition, have been endowed as follows :

The Washburn Scholarships, twelve in number, by Daniel Washburn, M. D., of Stowe, for the benefit of young men studying for the Christian ministry, or, in default of such applicants, of other deserving young men.

The Louisa H Howard Scholarships, seven in number, by Miss Louisa H. Howard, of Burlington.

The Sarah B. Jacobs Scholarships, seven in number, by Mrs. Sarah B. Jacobs, of Boston, for the benefit of graduates of Brigham Academy, at Bakersfield, Vt.

The Bertman Scholarship, by John Bertman, Esq., of Salem, Mass.

The Green Scholarship, by Horace Green, LL. D., of New York City.

The Fairbanks Scholarship, by the Hon. Erastus Fairbanks, of St. Johnsbury.

The Parker Scholarship, by the Rev. Charles C. Parker, D. D., '41, in memory of himself and son, Charles Edmund Parker, '67.

The Westford Scholarship, by the Hon. L. P. Poland, LL. D., of St. Johnsbury.

The Converse Scholarship, by John H. Converse, '61, of Philadelphia.

The Edwin Wright Marsh Scholarship, endowed by Charles P. Marsh, Esq., '39, of Woodstock, in memory of his son, of the class of 1872, for the benefit, in the first instance, of students from the town of Weathersfield, Vt.

The Charles Munson Marsh Scholarship, by the same, available first for students from Woodstock, if such apply.

The Charles P. Marsh Scholarships, five in number, available, first, for needy and worthy young men or women from the County of Windsor.

The Lizzie S. Converse Scholarship, by request of Miss Lizzie S. Converse of Burlington, for poor and deserving students in the Classical department.

The Rich Scholarship, by Charles W. Rich, Esq., '36, of St. Albans.

The Rich Scholarship, by the same, for the benefit, first, of students from the town of Swanton, Vt.

The Isle LaMotte Scholarship, by N. S. Hill, Esq., of Burlington, for the benefit of students from Isle La Motte, and failing such, from Craftsbury.

The Shaw Scholarship, by the Hon. William G. Shaw, of Burlington, of the class of '49.

The Class of '61 Scholarship, endowed and made available in 1891.

Appointments are made to these scholarships by the Faculty from term to term, and are conditioned on the attainment of a certain grade of scholarship and on exemplary conduct.

The endowment of additional scholarships would enable the University to extend its benefits to those who could not otherwise afford the expense of a four years' maintenance in College. The minimum endowment is one thousand dollars. The annual payment of \$60 relieves one student from the payment of tuition alone; of \$80, from the payment of tuition and annual fees.

STATE SCHOLARSHIPS

Thirty State Scholarships, covering tuition and incidental expenses in the Classical or Scientific departments, are now available. Nomination to these scholarships rests with the senators from the several counties, to whom application should be made.

THE JEDEVINE FUND

now available in part, is loaned in small sums to "poor and deserving students" in the Classical and Scientific departments, who are residents of Vermont. The loans must be well secured, and must be repaid within a specified time after the student leaves college. Applications may be made to the Treasurer of the University.

PRIZES

PRIZE FOR PROGRESS

A prize of \$25 will be awarded to the student who, in the judgment of the Faculty, is entitled to the greatest credit for effort and attainments in his studies upon completion of the Junior year.

PRIZES IN ELOCUTION

By gift from Dr. William E. Forest, 1874, New York City, prizes of \$25, \$15 and \$10 are offered to members of the Sophomore and Freshman classes for the best declamation of passages in oratorical prose.

THE READING PRIZE FOR YOUNG WOMEN

Prizes of \$25, \$15 and \$10 are offered by Mrs. Julia H. Spear, of Burlington, for excellence in reading by young women of the University.

THE PHELPS PRIZE

A prize of \$50 in gold, endowed in memory of the late Edward Haight Phelps, C. E., class of 1872, will be awarded by the Faculty each year at Commencement to a graduate of that year in Civil Engineering who shall have exhibited conspicuous merit in professional studies, and high and noble traits of personal character. A special certificate will accompany the prize, indicating the conditions upon which it has been awarded. In case no award shall be made in any year, the same amount of money will be expended in the purchase of books on the subject of Civil Engineering for the use of the department.

THESIS PRIZE

A prize of \$25 is awarded to the member of the Senior class in the Civil Engineering department presenting the best thesis.

HOWARD PRIZES

Mrs. Hannah T. Howard, of Burlington, left by will \$1,200, the income of which is to be awarded in prizes.

From the income of the above fund, three prizes of \$25 each will be awarded in 1896 to candidates for admission to the Freshmen Class who shall pass the best entrance examinations in Greek, in Latin, and in Mathematics.

THE LIBRARY

The Library of the University, selected with special reference to the several departments of study, contains 86,694 volumes, besides the 12,507 volumes that form the library of the late Hon. George P. Marsh, a collection of the highest value in the departments of Philology, European Literature and History, and Physical Geography. This collection is the gift of the late Hon. Frederick Billings of Woodstock, and is deposited in a room especially provided and elegantly appointed to receive it. The whole library has been carefully arranged by subjects, on the Dewey system, with accession and shelf catalogues. A card catalogue on the dictionary plan is in progress, being already complete for the subjects, Literature, Philology, History, Industrial Arts, Ethics, Philosophy, Religion and portions of Natural Science. A full catalogue of the Marsh collection, by authors and subjects, has been published.

The beautiful and commodious Billings Library, erected at a cost exceeding \$150,000, with a shelving capacity of 100,000 volumes, contains the general library of the University and the special collections. The apse, originally designed for the Marsh collection, has been appropriated to the use of the reference library and reading room.


The gift of \$10,000 which Mr. Billings made for the increase of the library has now been mostly expended, and several thousand volumes have been added.

The income from the bequest of Miss Maria Loomis, of Burlington, of the sum of \$10,000, has become available for the purchase of books. The income from the various funds available for the increase of the Library amounts to something over \$1,000 a year.

The Library is open during term time eight hours daily on week days for consultation and drawing books, and for reading and reference two hours on Sunday afternoons, and every week day in vacation. The reading room of the Library is supplied with the leading scientific and literary periodicals. Persons not connected with the University have free use of the Library for consultation, and on

special permission from the President or Librarian, are allowed to draw books. Students have also the use of the Fletcher Free Library, a collection of over 28,000 volumes, for loan and reference, which is open daily.

The Library Committee solicits gifts of books and pamphlets relating to Vermont History and the lives of natives of Vermont; also of copies of all books written by Vermonters, or published in the State, and of files of State papers, especially of the first half of this century, and earlier.

 *Of the Annual Catalogues of the University supposed to have been issued from 1810 to 1833, inclusive, the Library possesses only those of 1822, 1823 and March, 1825. The alumni, and other friends, are earnestly requested to help in completing our file.*

THE MUSEUM

The various collections exhibited in the Museum building, though primarily gathered and arranged with reference to study and for illustrating lectures, are of general interest. The rooms are accessible to the public on week days from 9 A. M. until 5 P. M. For the general guidance of visitors the following outline of the arrangement of the specimens is given :

On the first floor is the Mineralogical collection, which contains several thousand specimens representing nearly all the species mentioned in the Manuals. Some of the specimens are unusually fine, notably a splendid series of Sicilian sulphurs, celestites and associated minerals collected by the Hon. Geo. P. Marsh, and a number of Hartz Mountains and other European minerals collected by the Rev. Edward Hungerford. There is also an extensive series of the rocks of Europe and a very complete set of the lavas of Vesuvius, the gift of Mr. Hungerford. A nearly complete set of the rocks and marbles of Vermont and several hundred specimens of foreign marbles are also placed in this room, though only a part can be shown for lack of space. Besides foreign birds and mammals, there is nearly a complete representation of the mammals, birds and fishes native in this

State and a large alcoholic collection of the reptiles and fishes of the United States. There is a smaller collection of mounted skeletons of vertebrates and numerous crania and other bones, including a perfect lower jaw of the sperm whale. The nests and eggs of many of the birds common in Vermont have been obtained and most of them are arranged in cases. On this floor is a fine bas relief, dating from about 875 B. C., taken from one of the palaces at Nimroud, the gift of Mr. John H. Converse.

On the second floor of the Museum building there is a large collection of shells made up of selections from the original Museum collections and from those of the Hon. L. E. Chittenden and Prof. G. W. Benedict, which were given to the Museum a few years ago. To these during the present year the fine collection of Dr. William C. Hickok has been added. Smaller but good collections of corals, echinoderms and sponges occupy cases near the shells. Of these the living forms are in many cases shown by the beautiful Blaschka glass models. On this floor also is a collection of fossils which represents all the geological epochs, some of them very fully. During the past year several hundred specimens of coal plants, and some fine Vertebrates from the Tertiary of Kansas and Wyoming have been added. In Archæology the Museum possesses the most complete series in existence of Vermont stone, bone, copper, and earthenware objects, as well as some thousands of specimens from other parts of the United States. There is also a fine display of pre-Columbian pottery from Nicaragua. A considerable number of entire jars from mounds in Missouri, several hundred stone implements from Ohio, and a collection of Zúñi and other Pueblo pottery have just been added.

The Ethnological collection, which has recently become of some importance, has been wholly re-arranged and numerous specimens added during the year. It occupies a room recently constructed and is worthy of careful examination. It contains objects from Australia, Polynesia, Africa and Oriental countries, some of them fine specimens of the best native workmanship, and also the very fine series of

weapons, ornaments, articles of dress, utensils, etc., of the northern Sioux, collected by Capt. O. B. Reed, U. S. A. The interest and value of the Ethnological collection will ere long be greatly increased by the addition of the many superb specimens of East Indian and Oriental workmanship, arms, carvings, fabrics, ornaments, etc., bequeathed to the Museum by the late Mr. H. LeGrand Cannon, with a sum of money sufficient to provide a suitable room for their reception. This is the most valuable gift the Museum has ever received.

In addition to the collections named the Museum has a large herbarium, containing all the plants found in Vermont as well as thousands of species from other localities, several hundred specimens of North American and tropical woods, a collection of fruits and seeds, a considerable collection of insects, and a good collection of ancient Greek and Roman coins, besides those of most modern nations. None of these are shown in open cases, nor are they all in the cases at the museum building, but they may be examined by persons interested on application to the Curator.

The key of the Museum building may be obtained at the Library.

THE PARK GALLERY OF ART

TRUSTEES

PRES. M. H. BUCKHAM, *President ex-officio*

PROF. H. A. P. TORREY, *Secretary*

HON. F. C. KENNEDY, *Treasurer*

HON. G. G. BENEDICT COL. LEGRAND B. CANNON

HON. E. J. PHELPS

It is the aim of the Trustees of the Art Gallery to gather into a small but good collection, such works of art, paintings, engravings, models, casts, photographs, etc., as will serve to illustrate the history and the principles of both ancient and modern art. The nucleus of such a collection has already been secured. Contributions are solic-

ited in any of the following classes, or funds for the purchase of the same :

1. Paintings—not copies—by either American or foreign painters. 2. Works of Sculpture: statues, busts, reliefs, medallions, whether original or copies made under the eye of the sculptor. 3. Original drawings. 4. Casts from noted sculptures. These are especially valuable in art studies and are comparatively inexpensive. 5. Bronzes, terra cottas, enamels, faiences, ancient vases, works in metal and glass, tapestries, etc., in which the artistic merit is conspicuous. 6. Valuable engravings, wood-cuts and etchings. 7. Photographs from originals of the great masters in painting, and from the best works in sculpture and architecture. 8. Works on art, biographies, dictionaries, criticism, etc. The names of donors will be inscribed on works of art presented to the gallery.

ALUMNI ASSOCIATIONS

Local Alumni Associations for cherishing the college spirit, and for promoting the interests of the University in their several localities, have been formed as follows :

THE NEW YORK ASSOCIATION, for New York City and vicinity : *President*, Rev. Lewis Francis, Brooklyn, N. Y.; *Vice-Presidents*, W. E. Forest, M. D., and Maj. Z. K. Pangborn; *Secretary and Treasurer*, W. C. Flanders; *Executive Committee*; Edward S. Peck, M. D., Fred. Billings, C. W. Baker, George L. Wheeler, Hon. D. P. Kingsley.

THE NEW ENGLAND ASSOCIATION, meeting in Boston. *President*, Hon. Edmund H. Bennett, LL. D., Boston, Mass.; *Vice-Presidents*, Hon. H. O. Houghton*, Rev. N. G. Clark, LL. D., Hon. G. G. Benedict, F. W. Page, M. D., Charles A. Catlin; *Secretary and Treasurer*, George W. Stone, 71 Kilby St., Boston; *Chaplain*, E. H. Byington, D. D.; *Executive Committee*, Col. George N. Carpenter*, Prof. D. R. Dewey, Ph. D., C. P. Thayer, M. D., J. A. Dow, M. D., W. B. Gates.

*Deceased.

ASSOCIATE ALUMNI

President, Robert D. Benedict, LL. D., Brooklyn, N. Y.

Vice-President, Hon. George N. Carpenter*, Boston, Mass.

Secretary, Charles E. Allen, Burlington, Vt.

Treasurer, Don. A. Stone, Burlington, Vt.

Obituary Committee, Hon. G. G. Benedict, Prof. J. E. Goodrich,
Principal S. W. Landon, J. Isham Bliss, D. D.

Executive Committee, Hon. E. B. Taft, Rev. S. L. Bates, Hon.
Elias Lyman, H. C. Farrar, D. D., Hon. Henry W. Hill.

*Deceased.

DEPARTMENT OF MEDICINE

FACULTY

MATTHEW HENRY BUCKHAM, D. D.,

President.

JOHN ORDRONAU, M. D., LL. D.,

Emeritus Professor of Medical Jurisprudence.

J. WILLISTON WRIGHT, A. M., M. D.,

Emeritus Professor of the Principles and Practice of Surgery.

ALBERT F. A. KING, A. M., M. D.,

Professor of Obstetrics and Diseases of Women.

ASHBEL PARMELEE GRINNELL, A. M., M. D.,

Professor of the Theory and Practice of Medicine ; Consulting Physician to the Mary Fletcher Hospital and to the Fanny Allen Hospital, and Dean of the Faculty.

RUDOLPH AUGUSTUS WITTHAUS, A. M., M. D.,

Professor of Chemistry and Toxicology.

J. HENRY JACKSON, A. M., M. D.,

Professor of Physiology and Microscopic Anatomy.

ABEL MIX PHELPS, M. D.,

Professor of Surgery ; Consulting Surgeon to Mary Fletcher Hospital ; Surgeon to Charity Hospital, N. Y.

HENRY CRAIN TINKHAM, M. D.,

Professor of General and Special Anatomy; Attending Surgeon to the Mary Fletcher Hospital and to the Fanny Allen Hospital.

JAMES NATHANIEL JENNE, M. D.,

Professor of Materia Medica and Therapeutics.

JOHN BROOKS WHEELER, A. B., M. D.,

Adjunct Professor of Surgery, Professor of Clinical and Minor Surgery ; Attending Surgeon to the Mary Fletcher Hospital ; Consulting Surgeon to the Fanny Allen Hospital.

C. SMITH BOYNTON, A. M., M. D.,

Adjunct Professor of Chemistry.

PATRICK E. MCSWEENEY, M. D.,

Adjunct Professor of Obstetrics ;

Attending Physician to the Mary Fletcher Hospital and the Fanny Allen Hospital.

HARRIS R. WATKINS, M. D.,

Demonstrator of Anatomy; Attending Physician to the Mary Fletcher Hospital, and the Fanny Allen Hospital.

PROFESSORS OF SPECIAL SUBJECTS

J. H. WOODWARD, B. S., M. D.,

Professor of Diseases of the Eye, Ear and Throat; Ophthalmologist to the Mary Fletcher Hospital and the Fanny Allen Hospital.

GREAME M. HAMMOND, M. D.,

Professor of Diseases of the Nervous System.

WILLIAM WOTKYNS SEYMOUR, A. B., M. D.,

Professor of Surgical Diseases of Women, and of Dermatology.

J. H. LINSLEY, M. D.,

Professor of Pathology and Bacteriology; Pathologist to the Fanny Allen Hospital.

JAMES R. HAYDEN, M. D.,

Professor of Genito-Urinary and Venereal Diseases ; Visiting Surgeon to City Hospital, Blackwell's Island.

P. M. WISE, M. D.,

Professor of Diseases of the Mind ; Supt. of St. Lawrence Insane Asylum.

ARTHUR B. BISBEE, M. D.,

Professor of Medical Examinations for Life Insurance.

J. E. CUSHMAN,

Professor of Medical Jurisprudence.

ANNUAL ANNOUNCEMENT, 1895

The Medical Department of the University of Vermont was chartered by the State in 1828. It was organized in 1854. The institution is consequently one of the oldest Medical Colleges in the United States.

The forty-third annual course of lectures will begin Thursday, January 16th, 1896, and continue six months. This extension of the term will increase the scope of the instruction and afford the student more time to digest the information imparted to him. The corps of instructors has been increased by the election of Adjunct Professors to several chairs. These Adjuncts will instruct the class by lectures or recitations under the direction of the chief of the department, and such instruction will be a compulsory part of the curriculum. The executive faculty remains unchanged.

There will be only *one* course of lectures each year in this department.

The curriculum comprises instruction in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice, Obstetrics, Surgery, Diseases of Children, Ophthalmology and Otology, Pathology and Bacteriology, Neurology, Diseases of the Mind, Hygiene, Medical Jurisprudence, Venereal Diseases, Dermatology, Laryngology, Gynæcology and Examinations for Life Insurance. This instruction is given by scholastic and clinical lectures and by demonstrations. Laboratory instruction in Urinary Analysis, Histology, Pathology and Bacteriology, and practical work in Physical Diagnosis, Surgery and Demonstrative Obstetrics are now compulsory; and each candidate for the degree of Doctor of Medicine must have taken each of these branches *once* during his attendance at this college, unless he has evidence of having taken the same at some other college.

All private courses by the professors are abolished.

REQUIREMENTS FOR ENTRANCE

All students who have matriculated in this Department of the University *prior to July 8, 1891*, will be admitted to the lectures and enrolled as students in regular standing, *without preliminary examination*.

Applicants who do not belong to this class will be required to pass an Entrance Examination in *Arithmetic, Grammar, Geography, Orthography, American History, English Composition and Elementary Physics*, before they may be regularly enrolled as students in good standing in this department. But applicants who may have failed in one or more branches at these examinations may be enrolled as *conditioned* students; they must make up the deficiency, however, during the first year, before they can be enrolled as students in regular standing.

EXCEPTIONS:—Such entrance examination *will not be required* of applicants of any of the following classes:

1. Those who declare themselves *in writing* not to be candidates for the Degree in Medicine from this College.

2. Those who have received the Degree of A. B., A. M., B. S., M. S., Ph. B., or Ph. D., from a College or University which maintains a satisfactory academic standard.

3. Those who have successfully completed a full year's course of study in any College or University which maintains a satisfactory academic standard.

4. Those who have passed satisfactorily the entrance examination to the Academic Department of the University of Vermont, or to any other College or University which maintains a satisfactory academic standard.

5. Those who have passed the entrance examination to a Medical School having requirements for entrance equivalent to those adopted by this Faculty.

6. Those who have received a Medical Student's Certificate from the Regents of the State of New York, or from any similarly constituted authority in other States.

7. Those who have received a Diploma or a Certificate for any ten studies from the Regents of the State of New York, or from any similarly constituted authority in other States.

8. Those who have satisfactorily completed a three years' course in a High School, Normal School or Academy.

Examinations for entrance will be held January 27 to 31, March 23 to 27, and June 15 to 19, 1896. Detailed information in regard to examinations will be found in the special Announcement of this Department.

CLINICAL INSTRUCTION

During the lecture term College Clinics will be held as follows: A Medical Clinic at the Hospital every Wednesday morning, January 22 to May 21; a Clinic for Diseases of the Eye, Ear and Throat, March 23 to April 7; a Surgical Clinic every Saturday morning, January 25 to May 2; a Clinic for Diseases of the Skin, May 11 to May 15; a Clinic for Diseases of Women, May 8 to May 15; a Surgical Clinic every Saturday morning and every Wednesday afternoon, May 20 to June 24; a Clinic for Diseases of the Nervous System, April 27 to May 1. For further information see special Announcement.

REQUIREMENTS FOR GRADUATION

Students who have matriculated in this College prior to July 1, 1890, will be subject to the regulations and requirements for graduation as printed in the Announcement for 1890.

THREE FULL COURSES OF LECTURES, OF AT LEAST TWENTY WEEKS EACH, WILL BE ABSOLUTELY REQUIRED OF STUDENTS WHO DO NOT COME UNDER THE ABOVE REGULATION, AND NO PERIOD OF PRACTICE WILL BE TAKEN AS AN EQUIVALENT OF ONE COURSE.

No candidate shall be admitted to an examination until all fees due the College from such candidate shall have been paid.

Candidates for the degree of Doctor of Medicine, before presenting themselves for examination, must have attended at least three full courses of lectures of twenty weeks' duration each, the last at

this College. The candidate must have studied medicine three years, must have attained the age of twenty-one years, and must present full certificates of the time of his study, of age, and of moral character. Each candidate is required to deposit his examination fee with the Secretary of the Faculty one month before the close of the session, and to furnish evidence of having pursued the study of Practical Anatomy under the direction of a demonstrator.

He must have taken at least one course of Laboratory instruction in Urinary Analysis, in Histology, and in Pathology and Bacteriology, and one course of practical work in Physical Diagnosis, in Practical Surgery, and in Demonstrative Obstetrics in some regular Medical College before he may become a candidate for graduation.

He must also pass a satisfactory written or oral examination before the Medical Faculty and Board of Medical Examiners appointed by the State Medical Society. No thesis is required.

The tickets and diplomas of Eclectic and Homœopathic, or Botanic Colleges, or Colleges devoted to any special system of medicine, are considered irregular, and will not be recognized under any circumstances. Certificates from preceptors who practice any particular system of medicine, or who advertise, or violate in any way the Code of Ethics adopted by the profession, will not be accepted under any circumstances, even if the preceptors are regular graduates in medicine.

Graduates of other regular Medical Colleges who desire a degree from this University must pass a satisfactory examination in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice of Medicine, Surgery and Obstetrics. No thesis is required.

No credit in time or in lectures shall be given any student by virtue of his degree in Pharmacy, Dentistry, or Veterinary Surgery.

Degrees *in absentia* are not conferred by this University under any circumstances whatever.

EXAMINATIONS IN ELEMENTARY BRANCHES

Students who have attended two full courses of lectures *in all departments taught in this College* may be examined upon Anatomy,

Physiology, Chemistry and Materia Medica at the end of the second course, and if successful in these examinations they will be examined at the end of the third course upon Practice of Medicine, Surgery and Obstetrics only. Candidates for the primary examinations will be required to pay three-fifths of the examination fee. The primary examinations are held at the close of the regular session only. The certificate and the remainder of the examination fee are to be handed to the Secretary at the regular time before the examination. Certificates of having passed in any branch or branches in other colleges are not accepted by this College.

FACULTY PRIZES

The Faculty have established two Prizes for general proficiency in examination—a First Prize of Fifty Dollars and a Second Prize of Twenty-five Dollars. These prizes will be awarded as follows :

The ten students who pass the best examinations for their degree will be allowed to compete in a written examination for the prizes; of this number, the five who rank highest shall be called Honor Men, and will each receive a special *Diploma of Honor*, and of these last, those who are deemed worthy shall receive respectively the first and second prizes.

The Honor Men of 1895 were : Harry Milton Gardner, Charles Bump Hussey, James Henry Naylor, Harry A. Brown, Schuyler W. Hammond. The First Prize was awarded to Harry M. Gardner; the Second Prize to Charles B. Hussey.

FULL FEES OF THE COLLEGE

MATRICULATION FEE, payable each term.....	\$ 5 00
FULL COURSE OF LECTURES, each year.....	100 00
SINGLE TICKETS.....	20 00
EXAMINATION FEE, payable once, and not returnable.....	25 00

There are no other fees or charges of any kind.

In the Sessions of 1896 and 1897, but not thereafter, any student who has taken a special course in this College in Urinalysis or Pathology will be credited with the amount of the fees paid therefor upon

his *second year* fees; and any student who has taken a special course in this College in Physical Diagnosis, Demonstrative Obstetrics or Practical Surgery will be similarly credited upon his *third year* fees.

Graduates of other regular American Medical Schools are admitted on payment of the matriculation fee and \$25.

Graduates of this school are admitted without fee.

Theological students are admitted on payment of the matriculation fee only, unless intending to graduate in medicine, in which case they will be required to conform to the above conditions.

All fees must be paid to the Secretary, and are payable in advance.

BOARD may be obtained for from \$3.50 to \$5.00 per week. Good accommodations furnished students who wish to board themselves. Many adopt this method at a great reduction in expense. Students who intend to board themselves will find such bedding and culinary articles as they may require furnished with the rooms.

After registering, every student is furnished with a certificate entitling him to half-fare on railroad and steamboat lines running into Burlington.

For further particulars address the Secretary,

B. J. ANDREWS, M. D.,

Mary Fletcher Hospital,

BURLINGTON, VT.

STUDENTS OF 1895

Adams, James Thatcher.....	Sandwich, N. H.
Aldrich, Charles.....	Franconia, N. H.
Allen, Lyman, A. B.....	Burlington, Vt.
Allen, Walter Brainard.....	St. Johnsbury, Vt.
Andrews, Clayton Gerald, Ph. B.....	Richmond, Vt.
Avery, J. Waite, A. B.....	Burlington, Vt.
Barton, Walter E.....	Spencer, Mass.

Basch, William Abner.....	New York
Bates, Charles Henry.....	Burlington, Vt.
Bates, George Lucien.....	Morrisville, Vt.
Bates, Walter Simpson.....	Barre, Mass.
Baylies, Frederick Wheaton.....	New Bedford, Mass.
Bean, John Hiram.....	West Milton, Vt.
Beauclerk, William Preston.....	Irasburgh, Vt.
Beirne, James Patrick.....	Keene, N. H.
Bigelow, Edwin Payson.....	Stowe, Vt.
Bissell, Charles Emerson.....	Starkey, N. Y.
Bixby, Winfred Lewis.....	Clarendon, Vt.
Blackman, Chester Eugene.....	Bridgeport, Ct.
Blanchard, Lynn Harry.....	Springfield, Me.
Blodgett, John Henry, Ph. B.	Grafton, Vt.
Bordeleau, Joseph Charles A.....	Stanford, P. Q.
Botsford, Richard.....	Fort Dodge, Iowa
Boyer, Arthur Irving.....	New Haven, Conn.
Bray, Reginald Gilbert.....	Burlington, Vt.
Brazille, Frank Hamilton.....	Camden, Me.
Brown, Edmund Towle.....	Ashland, N. H.
Brown, Harry Albertus.....	Salmon Falls, N. H.
Brundage, Edgar Morse.....	Upper Greenwich, N. B.
Burbank, Lester Warren.....	Walden, Vt.
Burdick, Elmer Almon.....	Winooski, Vt.
Burr, Clarence Harvey.....	Thetford Centre, Vt.
Byrnes, Ambrose Guy.....	Madison, N. Y.
Calder, Daniel Hainer.....	Salt Lake City, Utah
Calkins, Irving Romanzo.....	Springfield, Mass.
Chaffee, Harry Smith.....	Rochester, Vt.
Chesebrough, Philo.....	Buffalo, N. Y.
Cogswell, S. J.....	Ashburnham, Mass.
Colby, Bernie Dennis, A. B.....	Bristol, Vt.
Cole, Cheney Isaac.....	Burlington, Vt.
Cole, Judson Henry.....	Ellenburgh Centre, N. Y.

Comerer, Jacob Alvin.....	Burnt Cabins, Pa.
Cooke, Edward Richard.....	Toledo, Ohio
Cooke, Norman Randolph.....	East Jackson, Me.
Courtney, James William.....	Burlington, Vt.
Cramm, William Edward.....	Philadelphia, Pa.
Crane, Edward M.....	Hardwick, Vt.
Curley, Clarence Proctor.....	Fairfax, Vt.
Curry, Edward Thomas.....	Lynn, Mass.
Damon, Albert Hobart.....	Charlotte, Me.
Davis, Edwin Black.....	Rutland, Vt.
Davis, Stephen Rich.....	Barre, Vt.
Dawson, Wellington Levi.....	Hillsboro, N. B.
Disbrow, John Robert.....	Dalhousie, N. B.
Dodds, John Hazen.....	North Hero, Vt.
Donovan, Cornelius Henry.....	Keene, N. H.
Dooley, Timothy Joseph.....	Hartford, Conn.
Drew, John Almus.....	St. Albans, Vt.
Duffey, Charles Elton.....	Parishville, N. Y.
Dunham, Frank Lee, A. B.....	Northfield, Vt.
Eddy, Stanton Lee, A. B.....	Middlebury, Vt.
Eggleston, Horace Wardner.....	New York
Ellis, Elmer Ellsworth.....	Roxbury, Vt.
Englesby, William Hudson, A. B.....	Burlington, Vt.
Estabrooke, John Wesley.....	Sherburne, Vt.
Fay, Albert Samuel.....	Potsdam, N. Y.
Fiske, Harold Albert.....	Montpelier, Vt.
FitzGerald, William Henry.....	Middletown, Conn.
Flagg, Ernest Jabez.....	Richmond, Vt.
Fortier, Quincy Edgar.....	Waterbury, Vt.
Gardner, Harry Milton.....	Brimfield, Mass.
Gatchell, Worth Tyndall.....	Alton, N. Y.
George, Burt Dutton.....	East Calais, Vt.
Gibson, John.....	Burlington, Vt.
Girard, George W.....	Burlington, Vt.

Goddard, Anthony Marvin.....	Hyde Park, Vt.
Goldberg, Ralph Henry.....	New York
Griffiths, Watkins William.....	West Pawlet, Vt.
Griswold, Merton Lyman.....	Brookfield, Vt.
Gudinian, Mihoan Kirkor.....	Armenia
Gustin, Walter Sebre.....	Union Village, Vt.
Hall, W. G. B.....	Balston Springs, N. Y.
Hammond, Schuyler Weston.....	Rutland, Vt.
Hare, William.....	Ashburnham, Mass.
Harrigan, John Darwin.....	Chateaugay, N. Y.
Hart, Elmer Beede.....	Centre Sandwich, N. H.
Hatch, Fred Thorburn.....	Burlington, Vt.
Hawthorn, Jefferson.....	Pittsford, Me.
Heft, George Stanley.....	Bridgeport, Conn.
Heidel, Lewis Albert.....	Grant, N. Y.
Herrick, Van Buren.....	East Fairfield, Vt.
Hill, Thomas Chittenden, Ph. B.....	Charlotte, Vt.
Holden, George Walter.....	Barre, Mass.
Holland, Robert Edward Lee.....	Austin, Texas.
Horan, Edward James.....	Pittsfield, Mass.
Hoyt, Frank Alonzo.....	South Reading, Vt.
Huntley, Rev. George Arthur.....	Weston, Eng.
Hussey, Charles Bump.....	Franklin, Mass.
Hutchinson, John.....	South Manchester, Conn.
Irwin, Vincent James.....	Springfield, Mass.
Jackson, Osceola Ellsworth.....	Fall River, Mass.
Johnson, Robert William.....	Weavertown, N. Y.
Judd, John Wesley.....	New Lenox, Mass.
Judson, Harry Gray.....	Bethel, Conn.
Kearne, James Emmett.....	Roxton Falls, P. Q.
King, Jerome Marcus.....	Reelsville, Ind.
Knowles, Wesley Lindley Murray.....	North Ferrisburgh, Vt.
Lewis, Henry Edwin.....	Providence, R. I.
Libby, George Warren.....	Colton, N. Y.

Livingston, Ernest George.....	Berkshire, Vt.
Longe, Bertie Duane, B. S.....	Burlington, Vt.
Lowell, Alverne Percy, Ph. B.....	Burlington, Vt.
Lunderville, Evroy Paul.....	St. Albans, Vt.
Lyston, John Thomas.....	Rutland, Vt.
McAllister, Sheridan Davis.....	Warren, Vt.
McFarland, William J. R.....	Flackville, N. Y.
McGuire, Michael Francis.....	Burlington, Vt.
Mack, John Alexander.....	North Wilbraham, Mass.
Mackay, Albert James.....	Peacham, Vt.
McKenzie, James Bernard.....	S. Burlington, Vt.
Marable, Augustus.....	New Orleans, La.
Marshall, Lewis J.....	Morrisville, Vt.
Marshall, Velona Alonzo.....	Proctor, Vt.
Milliken, Walter Sylvester.....	East Baldwin, Me.
Mitchell, Henry Walter.....	Malden, Mass.
Montifiore, Herbert Nathan.....	St. Albans, Vt.
Mooney, Michael Henry.....	Montpelier, Vt.
Morse, Charles Frederick.....	Montpelier, Vt.
Mountain, Edward John.....	Danville, P. Q.
Mulcahy, Thomas Patrick.....	Newark, N. J.
Naylor, James Harry.....	Schuylerville, N. Y.
Nolan, Michael.....	Haverhill, Mass.
Oakes, William E.....	Burlington, Vt.
O'Neil, O. W.....	West Chazy, N. Y.
Parker, John Howard.....	Boston, Mass.
Parker, Walter Henry.....	Newport, Vt.
Parkhurst, George Davenport.....	Fair Haven, Vt.
Parsighian, Jacob H.....	Marsovan, Turkey
Patten, John Reynolds.....	Alburgh Springs, Vt.
Peaselee, Charles Capen.....	Auburn, Me.
Perrault, Joseph Gregory.....	St. Hyacinth, P. Q.
Peterson, John Adnea.....	North Heath, Mass.
Plummer, Frank Joseph.....	Melrose, Mass.

Pond, Erasmus Arlington, Ph. B.	Rutland, Vt.
Rankin, William H.	Troy, N. Y.
Ranks, Walter Hildreth	Lowell, Mass.
Reed, Robert Myron	Burlington, Vt.
Reynolds, Clarence Ira	Madrid, N. Y.
Rhinehart, William Bridges	Lanesboro, Mass.
Robb, William M.	Green River, Vt.
Robson, Rev. John K.	Wilmslow, Eng.
Rockwell, Herbert George	Newport, N. H.
Rogers, Verne Moores	Ashland, N. H.
Ross, Ellsworth Frank	Huntington, Vt.
Ross, Ellwood Jackman	Bath, N. H.
Rowley, Alfred Merriam	Townshend, Mass.
Russell, Elmer	Burlington, Vt.
St. Germain, Joseph Arthur	Fall River, Mass.
St. Laurent, Joeeph Alfred	Sherbrooke, P. Q.
Sansom, John Wellington	Brooklyn, N. Y.
Saunders, Edmund Lewis	Hartford, Conn.
Scharringhausen, Henry Phillip	New York
Schwab, Alfred	New York
Scott, Frederick William	New York
Sheldon, David Watt	Dresden, Me.
Sherrard, Frederick	Charlotte, Me.
Smith, Carson Abijah	West Braintree, Vt.
Stafford, John Mather	Essex, N. Y.
Stevens, John Milton	Richmond, Vt.
Stockwell, Herbert Emmons	Burlington, Vt.
Sweeney, Frederick Christopher	Keeseville, N. Y.
Swift, Frank Merritt	Potsdam, N. Y.
Thayer, Walter Nelson, jr.	Dannemora, N. Y.
Tyndall, William J., jr.	Burlington, Vt.
Underwood, James Fenton	Benton Centre, N. Y.
Varney, John Roscoe	Vanceboro, Me.
Vernon, Harwood, A. B.	Summit, N. J.

Washburn, Eber Leslie.....	Lyon Mountain, N. Y.
Wheatley, Tenney Hall, B. S.....	East Brookfield, Vt.
Wheelock, Albert Andrews.....	Burlington, Vt.
White, Frank Dunster.....	White's Cove, N. B.
Whiteside, George D.....	Vergennes, Vt.
Wilder, Henry Lawrence.....	Swanton, Vt.
Willard, Rodney F.....	North Montpelier, Vt.
Young, Harry Augustus.....	New York.

DEGREES CONFERRED IN 1895

DEGREES IN COURSE

DOCTOR OF MEDICINE

Lynne Harry Blanchard	George Stanley Heft
Reginald Gilbert Bray	Thomas Chittenden Hill, Ph. B.
Harry Albartus Brown	George Walter Holden
Ambrose Guy Byons	Robert Edward Lee Holland
Daniel Homer Calder	Edward James Horan
Philo Chesebrough	Charles Bump Hussey
Edward Richard Cooke	John Thomas Lyston
William Edward Cramm	John Alex Mack
Edward M. Crane	Augustus Marable
Clarence Proctor Curley	Sheridan Davis MacAllister
John Robert Disbrow	Michael Francis McGuire
John Almus Drew	James Bernard McKenzie
Elmer Ellsworth Ellis	James Henry Naylor
Horace Wardner Eggleston	John Howard Parker
John Wesley Estabrook	Erasmus Arlington Pond, Ph. B.
Harold Albert Fiske	Ellsworth Frank Ross
William Henry FitzGerald	John Wellington Sansom
Harry Milton Gardner	Henry Philip Scharringhausen
Watkins William Griffiths	Carson Abijah Smith
Mihoan Kirkor Gudinian	Frederick Christopher Sweeney
Ralph Henry Goldberg	Howard Vernon, A. B.
W. G. B. Hall	Harry Augustus Young
Schuyler Weston Hammond	

BACHELOR OF ARTS

Marion Shaler Allen
Florence Lucy Burdick
Wilfred Farr Daggett
Earle Russell Davis
Frederick Barnum Deberville
Bert Hodge Hill
Theodore Eli Hopkins
Merrill Marquand Hutchinson
Grace Agnes Johnson
Eva Addie Jones

William Parmelee Marsh
Wm. James Renwick McFarland
Edward Gove Randall
Frederick Albert Richardson
Philip James Ross
Stewart Leroy Samson
Frederick Thompson Sharp
John Jay Wilson
Charles Gardner Winslow

BACHELOR OF PHILOSOPHY

Clayton Gerald Andrews
Frances Atkinson
John Henry Blodgett
George Hiram Dalrymple
Carroll Warren Doten
Alverne Percy Lowell, jr.

Alice Annie McDuffee
Leslie Manchester Saunders
Harry Clyde Shurtleff
Harry Abel Way
Grace Lovantia Wilcox

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

John Frederick Pratt
George Zadock Thompson

Rollin Nathaniel Woodward

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Karl Augustus Andr  n

Hugh Davis

BACHELOR OF SCIENCE IN CHEMISTRY

Henry McIntyre Deavitt

George Peterson

BACHELOR OF SCIENCE IN AGRICULTURE

Leigh Hunt
Charles Edward Stevens

Norman Brown Webber

HONORARY DEGREES

DOCTOR OF LAWS

Thomas Scott Buckham, of Faribault, Minn.

DOCTOR OF DIVINITY

Rev. Rodney Holland Howard, of Oakdale, Mass.

Rev. Vitellus Merrill Hardy, of West Randolph, Vt.

HONOR LIST, 1894-95

GENERAL HIGH STANDING

Class of 1895

Bert Hodge Hill

Alice Annie M'Duffee

Florence Lucy Burdick

John Frederick Pratt

Grace Agnes Johnson

SPECIAL HONOR THESES

Class of 1895

PHILOSOPHY

Carroll Warren Doten

Frederick Thompson Sharp

FRENCH LITERATURE

Stewart Leroy Samson

SPECIAL HONOR EXAMINATION

Class of 1895

GREEK

Bert Hodge Hill.

ENGLISH LITERATURE

Philip James Ross

Classes of 1896 and 1897

ENGLISH LITERATURE

George Fletcher Beecher John Edward Colburn
Gay Worthington Felton

FRENCH LITERATURE

Mattie Elisabeth Spafford Charles Clinton Taylor
Gay Worthington Felton Bessie Lou Stearns

ITALIAN LITERATURE

May Aurelia Peck Adelle Irene Lee

GREEK

Tracy Elliot Hazen

LATIN

Henry Wallace Clark

BOTANY

William Allen Orton

MATHEMATICS

James Wesley Boyce	Frank Porter Davis
Leonard Smith Doten	George Edson Philip Smith
Katharino Grace Wadleigh	Donald Clark Wedgeworth

DOUBLE HONORS

Bert Hodge Hill

SPEAKERS AT COMMENCEMENT

Carroll Warren Doten	Bert Hodge Hill
Merrill Murquand Hutchinson	Grace Agnes Johnson
William Parmelee Marsh	Alice Annie McDuffee
Edward Gove Randall	Frederick Thompson Sharp

SPEAKERS AT THE CONVERSE PRIZE DEBATE

Charles Ethan Allen	George Pomeroy Anderson
Avery Douglas Billings	Thomas Hawley Canfield, jr.
John Edward Colburn	Chauncey Marsh Goodrich
Elwin Leroy Ingalls	Annie Bowen Leavens
Florence Joanna May	Elisabeth Norton
May Aurelia Peck	Joseph Tuttle Stearns

PRIZES

FOREST PRIZES IN DECLAMATION

First : George Maynard Hogan
Second : Walter Towne Mott
Third : Frederick Buell Willard

JULIA H. SPEAR PRIZES IN READING

First : Arline Estelle Ladd
Second : Helen Frances Slade
Third : Mabel Augusta Miles

UNIVERSITY OF VERMONT

JUNIOR PRIZE FOR PROGRESS

Fred Steele English

CONVERSE PRIZES FOR DEBATE

First : John Edward Colburn

Avery Douglas Billings

Second : Thomas Hawley Canfield, jr.

Chauncey Marsh Goodrich

Third : Annie Bowen Leavens

ENTRANCE EXAMINATION PRIZES

Charles Francis Blair, *Greek*.

Fitted at the People's Academy, Morrisville.

Leon Ernest Daniels, *Latin*.

Fitted at the People's Academy, Morrisville.

Samuel Campbell Dunlop, *Mathematics*.

Fitted at the Troy Conference Academy, Poultney.

HONORABLE MENTION

George Douglass Osgood, *Greek*.

Fitted at the Montpelier High School.

Charles Francis Blair, *Latin*.Frederic Percy Byington, *Mathematics*.

Fitted at the Burlington High School.

The three students reported in 1894 to the U. S. War Department and to the Adjutant General of Vermont, as having shown most aptitude for military service (see p. 74), were the following :

Egbert Jackman Armstrong

Frederick Mellen Knights

Stephen Freeman

The following were so reported in 1895 :

Edward Gove Randall

Harry Clyde Shurtleff

Charles Gardiner Winslow

ACKNOWLEDGMENTS

The Library has received by gift during the last year 2606 volumes and 1607 pamphlets, and by exchange 87 volumes and 826 pamphlets. Of these additions 70 volumes and 101 pamphlets are publications of historical and scientific societies. To the donors the Librarian hereby makes grateful acknowledgment:

Ala. Geol. Survey, 1 v., 1 p., and map; Edward C. Alden, 1 v.; Charles E. Allen, 1859, 4 p.; Amer. Antiquarian Soc., 45 v. and 183 p.; Amer. Assoc. for the Advanc. of Sci., 1 v.; Amer. Cong. Assoc., 1 p.; Amer. Forestry Assoc., 3 p.; Amer. Geog. Soc., 7 p.; Amer. Humane Assoc., 1 p.; Amer. Museum of Nat. Hist., 1 v. and 1 p.; Amer. Pharmaceutical Assoc., 1 v.; Amer. Soc. of Irrigation Engineers, 1 p.; Amer. Soc. of Mechanical Engineers, *Transactions*; Amer. S. S. Union, 1 p.; Rev. J. G. Ames, 1 v.; Ariel Board, 2 v.; Miss Ella E. Atwater, 1889, 1 p.

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Illinois Bur. of Labor Statistics, 1 v.; Illinois State Board of

Health, 1 v.; Illinois State Entomologist, 1 p.; Illinois State Museum of Nat. Hist., 4 p.; Indian Rights Assoc., 2 p.; Indiana Bur. of Statistics, 1 v.; Iowa Sec. of State, 1 v.; Iowa State Hist. Dep't., 1 v. and 11 p.; Iowa State Hist. Soc., 3 p.; State University of Iowa, Bot. Lab., 3 v. and 2 p.

D. Willis James, 1 v.; Prof. C. D. Jameson, 1 v.; Jefferson Co. (N. Y.) Hist. Soc., 2 p.; Prof. L. R. Jones, *Botanical Gazette*.

Kansas Acad. of Sci., 1 v.; Kansas State Hist. Soc., 4 v. and 1 p.; Prof. W. C. Kitchin, 1 p.

Ladies' Home Journ. Lit. Bur., 1 v.; Mrs. Chas. Lanier, 1 v.; Leland Stanford Junior University, 1 v.; Prof. J. H. Linsley, 1880, 50 v.; Livingston Co. (N. Y.) Hist. Soc., 1 p.; Long Island Hist. Soc., 1 v.; Lotos Club (N. Y.), 1 v.

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H. E. Parker, 4 special issues of *United Opinion*, (Bradford); Lt. Geo. B. Peck, Jr., M. D., *Lond. Chem. Journal*; University of Pennsylvania, 1 v.; Univ. of Penn. Zoöl. Lab., 1 p.; Penn. Board of Agric., 9 v.; Penn. R. R. Co., 13 p.; Prof. G. H. Perkins, 14 p.; Edward L. Pierce, LL. D., 4 v. and 1 p.; Wm. P. Pierson, 1839, 10 p.; Hon. Redfield Proctor, 6 v.; Providence Public Library, 10 p.; Providence Record Com'rs., 1 p.

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Also the publishers of the *Advocate of Peace*, *American Creamery*, *American Economist*, *American Medico-Surgical Bulletin*, *American Missionary*, *American Wheelman*, *Bachelor of Arts*, *Bible Treasury*, *Book Reviews*, *Boston Evening Transcript*, *Civil Service Chronicle*, *Converted Catholic*, *Druggist's Circular*, *Fire and Water*,

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The theological and miscellaneous library of Rev. W. G. T. Shedd, D. D., LL. D., of New York City, of the class of 1839, notice of which was made in the last catalogue, has been received from his executors. It consists of 1878 volumes and 88 pamphlets. Of this valuable bequest about 550 volumes, including all the philosophy, ethics, theology, sociology, and philology have already been catalogued and placed on the shelves. The miscellaneous collection contains many valuable works in history, biography, classical and English literature.

PERIODICALS WANTED

The following list of volumes needed to complete our files of periodicals is printed in the hope that some of our friends may be willing to supply our deficiencies from the accumulations in their attics:

Academy (London), v. 23-30; *American Architect*, v. 1-18; *American Naturalist*, v. 1, 6-11, 13-19; *American Presbyterian Review*, v. 1-11; *Athenæum* (London), 1892; *Blackwood's Magazine*, v. 1-38, 91-98; *British Quarterly Review*, v. 1-52; *Christian Examiner*, v. 25-40; *Critic* (N. Y.), v. 1; *Dial* (Chicago); *Electrical Engineer*, v. 1-10; *Electrical World*, v. 1-16; *Electrician*, v. 1-28; *Galaxy*, v. 1-14; *Harper's Weekly*, v. 4-12, 25-29; *Lippincott's Magazine*, v. 1-date; *Literary World* (Boston), v. 1-9; *Methodist Magazine*, v. 1-11; *Methodist Quarterly*, v. 1-22; *Missionary Review*, v. 2, 4-6, 8-10; *The Nation*, (N. Y.) v. 1; *Nature*, v. 27-32; and Jan.-

Oct. 1894; *New York Times* (daily), 1875; *Public Opinion*, v. 1-5; *Railroad Gazette*, v. 1-80; *Review of Reviews*, v. 1-6; *Scientific American*, v. 1-29; *Supplement*, v. 1-2; *Scottish Review*, v. 1-8; *Southern Quarterly Review*, v. 1-7, 14 and after; *Westminster Review*, v. 1-19.

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Through the generosity of the following persons, the University is enabled to join the league of Colleges and Universities which maintains the *American School of Classical Studies in Athens*, an institution which has as its object the study of Classical Archæology and the training of Classical Teachers :

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*Deceased.	

Add to the list of Partial Students in the Sophomore class, p. 20, the name of Harry Willard Stedman, Springfield, Mass., 5 N. College.

SUMMARY

Seniors, 53 ; Juniors, 55 ; Sophomores, 60 ; Freshmen, 75 ; Graduate Students, 2. Total.....	245
Classical Students, 81 ; Literary Scientific 51 ;	
Students in Department of Arts,.....	188
Engineering Students, 45 ; Chemical, 16 ; Agricultural, 32 ;	
Students in Scientific Departments,.....	97
Special or Partial Students.....	15
<hr/>	
Total Academic Students.....	245
Medical Students.....	185
Dairy Students.....	50
<hr/>	
Aggregate	480

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1897

CALENDAR

DEPARTMENTS OF ARTS AND SCIENCE.

1896

30 Sept., Wednesday, A. M.,	First half-year began.
Thanksgiving Recess,	From Tuesday evening, Nov. 24,
	to Monday noon, Nov. 30.
Christmas Recess,	From Wednesday evening, Dec. 28,
	to Tuesday noon, Jan. 5.

1897

1 Feb., Monday,	Mid-year Examinations began.
15 " Monday,	Second half-year began.
Spring Recess,	From Friday evening, March 26,
	to Tuesday noon, April 6.
1 May, Saturday,	Founder's Day.
7 " Friday, 8 P. M.,	Prize Reading for Women Students.
28 " Friday, 8 P. M.,	Interscholastic Prize Speaking.
17 June, Thursday,	Final Examinations begin.
27 " Sunday, 8 P. M.,	Baccalaureate Discourse.
27 " " 7.30 P. M.,	Anniversary of Y. M. C. A.
28 " Monday,	Class Day.
29 " Tuesday, 9 A. M.,	Meeting of Phi Beta Kappa Society.
29 " " 10 A. M.,	Meeting of Alumni Association.
29 " " 3 P. M.	Oration before Phi Beta Kappa
	Society.
29 " " 7.30 P. M.	Forest Prize Speaking.
30 " Wednesday,	Commencement.
1 July, Thursday, 9 A. M.,	Entrance Examinations.

SUMMER VACATION

28 Sept., Tuesday, 9 A. M.,	Entrance Examinations.
29 Sept., Wednesday, 8.15 A. M.,	First half-year begins.
9 Oct., Saturday,	Freshman Prize Entrance Exam-
	inations begin.

DEPARTMENT OF MEDICINE

1897

14 Jan., Thursday,	Lectures began.
5 July, Monday,	Exercises of Graduation.

HISTORY AND CHARTERS

“ An Act for the purpose of Founding a University at Burlington,” was passed by the Legislature of Vermont, Nov. 2nd, 1791, of which the following are the Preamble and First Section :

“ Whereas the education of youth is necessary for the advancement of morality, virtue and happiness, and tends to render a people or State respectable ; to promote which, establishments for Seminaries and Colleges have ever been patronized by all good governments ; and whereas several grants of land have already been made by the State, and private liberal donations have been offered, for promoting so needful an establishment within the same, which demand the attention of this Legislature for laying the foundation for an institution so beneficent to society ; therefore,

Section I. It is hereby enacted by the General Assembly of the State of Vermont, that there shall be and hereby is a College instituted and established at such place in the township of Burlington in the County of Chittenden as the Corporators hereinafter named shall think most convenient for that purpose, to be known and designated by the style of THE UNIVERSITY OF VERMONT.”

A subsequent Act gave to the Corporation of the University “full power, right, and authority to appropriate to the use and benefit of the said University forever all such lands as have been already granted and reserved by the authority of this State for the use and benefit of a College.”

The Act of Incorporation vested in the Trustees of the University of Vermont full power “to appoint, elect, support and remove from time to time, all such officers and servants as they shall find necessary ; to direct the studies of the youth ; to establish professorships and professors, and provide for their support ; to make and establish all necessary rules, regulations and by-laws for the orderly government of said University (provided always that the said rules,

regulations and by-laws shall not tend to give preference to any religious sect or denomination whatsoever) ; to grant and confer all such degrees, literary titles, honors and distinctions as other Universities, Colleges and Seminaries have done or may of right do ; and to do any other thing which shall be found necessary for the government and welfare of such an institution."

With the consent of the Corporation certain changes were made by the Legislature in respect to the number and the mode of election of the trustees of the University by Acts passed Nov. 2nd, 1810, and October 31st, 1823, but these were, with like consent, repealed by the Act of October 30th, 1838, which revived and confirmed the provisions of the original charter, which charter remains in full force at the present time, with such modifications as the Corporation of the University accepted in 1865, in accordance with the provisions of the charter of The University of Vermont and State Agricultural College.

In 1862, largely through the exertions of Hon. Justin S. Morrill, then Representative and since Senator from Vermont, Congress passed an " Act donating public lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts." Under the provisions of this Act, the Legislature of Vermont chartered in 1862 the Vermont Agricultural College, which, failing to receive the support necessary to put it into operation, was by an Act approved Nov. 6th, 1865, incorporated with the University of Vermont into one institution by the name of " The University of Vermont and State Agricultural College." This corporation is invested with the property, rights, powers and privileges which belonged to both or either of the corporations so combined, and " shall be and remain a body corporate forever, for the purpose of carrying out the objects contemplated in the respective charters " of the two institutions.

The " objects contemplated " in the charter of the Vermont Agricultural College are stated in the exact language of the Act of Con-

gress providing for Colleges of Agriculture and the Mechanic Arts, as follows :

“The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agricultural and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.”

The objects contemplated in the charter of the University of Vermont are stated in the Preamble and Sections as given above.

The charter of the University of Vermont and State Agricultural College requires that “there shall, at all times, be maintained in the institution hereby created such instruction in the various branches of learning as is contemplated in the several charters of each of the institutions hereby united ; and more particularly including a four years’ course of studies, similar to such as are generally taught in other colleges and not inferior to that recently taught in said University of Vermont ; and in addition to that which is usually taught in other colleges, the instruction in this institution shall include such enlarged facilities, and extended scope and variety in the study of those branches which relate to military tactics, agriculture and the mechanic arts, as shall render the whole instruction in conformity with said Act of Congress, as well as with the several charters aforesaid.”

Section II of the Charter provides that, for the purpose of receiving property by gift, grant, bequest or otherwise, and for certain other purposes therein specified, each of the original corporations shall be deemed and treated as having continued in life.

Gifts and bequests may therefore be made to (1) The University of Vermont, (2) The Vermont Agricultural College, (3) The University of Vermont and State Agricultural College.

By the provisions of

“An act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the

benefit of agriculture and the mechanic arts, established under the provisions of an Act of Congress approved July second, eighteen hundred and sixty-two," the institution receives from the United States Treasury an annual appropriation to be applied "only to instruction in Agriculture, the Mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

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<p>MATTHEW HENRY BUCKHAM, D. D., President.</p> <p>HIS EXCELLENCY, JOSIAH GROUT, Governor of the State.</p>	<p style="font-size: 3em;">}</p>	<p>EX OFFICIO</p>
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ON THE PART OF THE UNIVERSITY OF VERMONT

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ON THE PART OF THE VERMONT AGRICULTURAL COLLEGE

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<p>HON. JUSTIN SMITH MORRILL, LL. D., <i>Strafford.</i></p> <p>GARDNER SMITH FASSETT, <i>Enosburgh.</i></p> <p>CASSIUS PECK, <i>Burlington.</i></p>	<p style="font-size: 3em;">}</p>	<p>1898-99</p>
<p>HON. CROSBY MILLER, <i>Pomfret.</i></p> <p>HON. REDFIELD PROCTOR, A. M., <i>Proctor.</i></p> <p>HON. EBENEZER JALLS ORMSBEE, A.M., <i>Brandon.</i></p>	<p style="font-size: 3em;">}</p>	<p>1895-1901</p>

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Leader of the Chapel Choir.

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PRESIDENT BUCKHAM, PROFESSORS TORREY, PERKINS and GOODRICH.

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PROFESSORS TUPPER and STORRS, and MR. DOTEN.

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PROFESSORS PERKINS and WAUGH.

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PROFESSORS LOOMIS, VOTEY, AYER and WHEELER.

Publication Committee

PROFESSOR GOODRICH and MR. DOTEN.

GENERAL STATEMENT OF INSTRUCTION

Instruction is given in the University in :

I. The Department of Arts, which embraces :

1. The usual Classical course in the Languages, ancient and modern, Mathematics, Physical Science, Mental, Moral and Political Philosophy, Rhetoric, Literature and History, leading to the degree of Bachelor of Arts ;

2. The Literary-Scientific course, in which the studies of the Classical course are pursued with the exception of Greek, and which leads to the degree of Bachelor of Philosophy.

II. The Scientific Departments, embracing the studies required (1) by the Morrill Act of 1862, which provides that instruction be given not only in "Classical and other Scientific studies," but especially in "branches of learning relating to Agriculture and the Mechanic Arts ;" and (2) by the Endowment Act of 1890, which provides for instruction in "Agriculture, the Mechanic Arts, the English Language, and the various branches of Mathematical, Physical, Natural and Economic Science, with special reference to their applications in the industries of life."

These Departments are :

1. The Department of Engineering, which includes (a) Civil and Sanitary Engineering ; (b) Electrical Engineering ; (c) Mechanical Engineering.

2. The Department of Chemistry.

3. The Department of Agriculture.

The degree in each case is Bachelor of Science ; see Index, *Degrees*.

III. The Department of Medicine, leading to the degree of Doctor of Medicine.

ADMISSION

Candidates for admission to the University must produce satisfactory testimonials of good moral character and must be at least fifteen years of age.

Students coming from another college must present a certificate of regular dismissal from the institution they have left, and furnish satisfactory evidence of proficiency in all the studies—or their equivalents—which have been pursued by the class they propose to enter. For admission to an advanced class, a corresponding increase of age is required, and a thorough knowledge of all the studies which have been pursued by the students of the same class.

Young women are admitted to all courses in Arts and Science upon the same conditions as young men. They are required to room and board in families approved by the Faculty.

REQUIREMENTS FOR ADMISSION TO THE CLASSICAL DEPARTMENT

Greek. (1) Greek Grammar, including Prosody ; (2) Xenophon's *Anabasis*, four books ; (3) Homer's *Iliad*, three books ; (4) Woodruff's *Greek Prose Composition*, or prose work based upon the Xenophon read in class ; (5) Translation at sight.

Latin. (1) Latin Grammar, including Prosody ; (2) *Cæsar*, four books, or *First Latin Readings* by Arrowsmith and Whicher ; (3) Cicero, six orations and *De Amicitia* ; (4) Virgil, six books of the *Æneid* and the *Eclogues* ; (5) Prose Composition, forty lessons [the method of Moulton's *Preparatory Composition* (Ginn) is recommended] ; (6) Sight translation.

In the case of Latin and Greek authors, substitutes will be accepted if full equivalents for the work here prescribed.

Teachers are urgently requested to give their pupils practice in reading at sight. They are also urged to have their pupils read aloud in both *Greek and Latin* as much as possible, that the ear may be

trained to the sound of the language, and that the words may gradually come to convey a meaning to the pupil's mind immediately and not through their English equivalents.

In the pronunciation of Greek, the rules of Hadley and Allen's Grammar, pp. 4, 5, 7, should be followed. The "Roman" method of pronouncing Latin is used in the class room.

Mathematics. (1) Arithmetic, including the metric system; (2) Algebra, through Quadratic Equations; (3) Plane Geometry.

English. (1) English Grammar; (2) Orthoepy; (3) English Composition, to be based for 1897 upon the following works:

Shakspeare's Merchant of Venice and As You Like It; Scott's Marmion; Longfellow's Evangeline; Macaulay's Essay on Addison; Irving's Tales of a Traveller; Hawthorne's Twice Told Tales; George Eliot's Silas Marner; Addison's Sir Roger de Coverley Papers in the Spectator.

In 1898 upon the following:

Shakspeare's Julius Cæsar and As You Like It; Milton's Paradise Lost, Books i and ii; The Sir Roger de Coverley Papers in the Spectator; Goldsmith's Vicar of Wakefield; Coleridge's Ancient Mariner; Carlyle's Essay on Burns; Lowell's Vision of Sir Launfal; Hawthorne's House of Seven Gables.

History. (1) Ancient and Modern Geography; (2) Ancient History; (3) Greek History to Alexander; (4) Roman History to Augustus.

The examination in history will be based upon the Students' Series for the East and Greece, and upon Leighton's or Allen's Rome.

LITERARY-SCIENTIFIC COURSE

The requirements for admission to the Literary-Scientific course are the same as for the Classical course, except that in place of Greek an equivalent in French, or in German, or in some one of the Sciences will be required.

Requirements in French. (1) Proficiency in the elements of French Grammar, implying familiarity with inflection (particular

attention being given to irregular verbs), and the essentials of French syntax; (2) the ability to translate ordinary French prose at sight. This should be gained by reading, concurrently with the grammar work, at least six hundred duodecimo pages of standard French literature; (3) The ability to translate easy English sentences into French, to pronounce French, and to recognize French words and phrases when uttered.

The amount of preparatory work required in French may be indicated by the following books: Grandgent's Short French Grammar, and French Lessons and Exercises (High School ed.). About two hundred pages of some French Reader. Halévy's L'Abbé Constantin; Daudet's Contes Choisis, including La Belle Nivernaise (Cameron's ed.) Labiche et Martin's le Voyage de Monsieur Perrichon. A novel by Victor Hugo, George Sand, or other standard author; One classic play, by Corneille, Molière or Racine.

Full equivalents for the above works will be accepted, but in no case should the time given to French be less than five recitations a week for two years.

Requirements in German. The following courses are suggested to those who intend to offer German as a substitute for Greek:

First Year. Joynes-Meissner German Grammar and Brandt's Reader; the latter to be followed by as much as can be read of simple works like the Märchen of Andersen, Keller's Dietegen, or Auerbach's Brigitta. *Second Year.* The third part of the same grammar with selections from the Gedichte of Goethe, Schiller and Heine; Schiller's Jungfrau von Orleans and Heine's Harzreise.

In both of these courses the student should be given daily exercises (oral and written) in composition, in the first year translating into German detached sentences, and in the second, simple, connected English prose. Constant dictations in German, as a training to the ear, are recommended. A good collection of phrases is to be found in the Meisterschaft System of Rosenthal, and in Meissner's German Conversation.

The entrance examination, which will be both oral and written, will presuppose a thorough familiarity with the principles and the practice of pronunciation, with the declension of nouns and adjectives, the conjugation of the regular and irregular verbs, and the essentials of German syntax.

SCIENTIFIC DEPARTMENTS

The Mathematics, English and Geography as specified in the requirements for the Classical department are required for admission to the Scientific department, except that for entrance to the Engineering department both *Plane and Solid Geometry* are now necessary.

While these departments do not *require* preparation in French or German, yet in view of the limited time which can be given to these studies in a professional course, it is very desirable that the entering student should have received some preliminary training in them, and also in Latin. Students who enter without such preparation will be expected to give all the time devoted to modern languages, to the study of French.

This department will probably soon make the further requirements of Higher Algebra. For admission to the Chemical and Medical departments, consult the fuller statements of these departments.

Examinations for admission will be held in the large hall of the Science Building (second story) at the close and at the opening of each college year. See Calendar. The results of examinations will be reported immediately to the Committee on Admission who will furnish the successful candidates with Certificates of Approval to be presented by them to the President.

ADMISSION BY CERTIFICATE

Candidates will be admitted to any of the above Departments *without examination*, in case they bring Certificates of Graduation

from Preparatory Schools whose Courses of Study fully meet the above requirements. If the certificate is defective in respect to any required study, the student will be examined in that study. Certificates must be made out on blank forms furnished by the Secretary of the faculty. Students admitted by certificate will be regarded as being on probation the first half-year.

SPECIAL EXAMINATION IN ENGLISH

Every candidate for admission to any undergraduate department of the University—whether bringing Certificates or not; those only excepted who desire to pursue a partial course of study—will be required, at the time of entrance, to give evidence that he can write the English Language in a legible hand and with correctness in spelling, punctuation and construction. And no student will be admitted as a full matriculant until he has satisfied his examiners by a written test that he has read with care and intelligence the English works named in the “Requirements for Admission” (on p. 17) or their equivalents.

ADMISSION OF SPECIAL STUDENTS

Persons of suitable age and attainments may, by special permission of the Faculty and by the payment of a specified fee, pursue certain studies in connection with the regular college classes without becoming matriculate members of the University. The classes which are open to such students, with the conditions of admission, will be made known upon application to the President. Special Students are members of the University from the time of their admission, but are not candidates for a degree. They enjoy the privileges of the University and are subject to all its regulations.

Special Students must present their credentials to the Entrance Committee for approval and receive an order from the President before admission to the University. They will also inscribe their names upon the University Register.

REGISTRATION

Every Student upon entering the University is required to present his papers to the President on the Tuesday preceding the opening of the annual session. Upon approval he will receive from the President a Certificate of Admission. On the following Saturday the student is to deliver his certificate to the Registrar, and to enter his name upon the University Register. He will receive from the Registrar a Certificate of Registration which is to be delivered to the Treasurer, whereupon he becomes entitled to pay the entrance fee of ten dollars. The Treasurer's receipt is to be returned to the Registrar for record, after which the student will be considered a regular member of the University.

COURSES OF INSTRUCTION*

[**Letters in heavy-face type** signify: **R**, Required; **E**, Elective; **I,II,III,IV**, first, second, third and fourth year of the course; **A**, first half year; **B**, second half year; **Ag**, Agricultural. **Figures in heavy-face type** indicate the number of hours,† or exercises, per week.]

GREEK

1. Lysias, Selections.—Plato, Apology and Crito.—Homer, Odyssey, four books.—Prose Composition, based upon the prose read in the course. **RI4**.
2. Euripides, Medea.—Demosthenes, Olynthiacs.—Aristophanes, Clouds.—Sophocles, Oedipus Tyrannus.—Prose Composition, based upon the prose read in the course. **EII3**.
3. Greek Private and Social Life.—The private life of the Greeks will be treated in lectures. Collateral reading and subjects for investigation will be assigned. The aim of the course is to present a picture of the Greeks in their daily life. **EIII & IV (II by special permission) 2**.
4. The History of Greek Literature.—The rise and development of the various forms of Greek Literature will be treated briefly in lectures. The aim of the course is to encourage the students to read, both in the class and privately, selections from as wide a field of Greek Literature as possible. **EIII&IV3**.
5. Aeschines, Against Ctesiphon.—Demosthenes, On the Crown.—Aeschylus, Seven Against Thebes.—Sophocles, Antigone.—Aristophanes, Frogs. **EIII&IV3**.

PROFESSOR HOWES

*When not otherwise specified, Courses run through the year.

†The "hour" is fifty minutes, except in laboratory work, where it is an hour and fifty minutes.

LATIN

1. Livy, books i and xxi or xxii.—Tacitus, *Germania* and *Agricola*.—Horace, *Odes*.—Prose composition. **RI4**.
2. Cicero, *Tusculan Disputations*, book i.—Plautus, *Trinummus* and *Captivi*.—Terence, *Andria*.—Horace, *Epistles* and *Satires*. **EII3**.
3. Quintilian, books x and xii.—Cicero, *Letters*.—Juvenal.—Persius. **EIII3**.
4. Pliny, *Letters*.—Seneca, *Essays* and *Medea*.—Lucretius.—March's *Latin Hymns*.—Allen's *Early Latin*. **EIV3**.

PROFESSOR GOODRICH

ENGLISH

1. Rhetoric, English Composition, and Etymology.—Elementary Course.—Text-books, Hill's *Principles of Rhetoric*, and Trench on the Study of Words. **RI2**.
2. Criticism and Composition.—Study of Invention and of selected prose masterpieces.—Text-books, Genung's *Practical Rhetoric and Rhetorical Analysis*.—Constant drill in composition.—Weekly lectures upon the History of English Literature, with Stopford Brooke's *Primer* as a manual. **RII3**.
3. English Literature from the Restoration to the Present Day.—Lectures and seminary work upon the poets and important literary movements of the last two centuries.—Lectures upon the History and Principles of English Versification. **E3**.
4. Anglo-Saxon.—Training in early linguistic forms and in development of English.—Literary study of Anglo-Saxon poetry.—Text-book, Bright's *Anglo-Saxon Reader*. **EA2**.

5. Chaucer.—Supplementary to 4.—Further study of linguistic development.—Chaucer's poetry.—Collateral reading in the works of his contemporaries. **EB2.**
6. Shakspeare and his Contemporaries—Elizabethan Drama, lectures and collateral reading. Literary study and textual interpretation of selected plays of Shakspeare.—Text-books, the Globe Shakspeare, Rolfe's editions, and Dowden's Primer. A study of the non-dramatic poetry of the period will complete the course. **E3.**
7. American Literature.—The greatest writers of the country and century will be studied. Lectures, reports, and collateral reading. Text-book, Beers' Outline Sketch of American Literature. **E2.**

[Courses 3, 4 and 5 will be given in 1896-97; courses 6 and 7 in 1897-98. This alternation will enable the student, by a proper choice of electives, to trace through its entire history the linguistic growth and the literary development of English.]

PROFESSOR TUPPER

Members of the Freshman and Sophomore classes are required to deliver two selected declamations during the year. Juniors are required to debate twice during the year, and Seniors are required to deliver two original orations, or to write four essays during the year.

FRENCH

1. Elementary French.—Grandgent's Short French Grammar and French Lessons and Exercises; Halévy, l'Abbé Constantin; Labiche, le Voyage de Monsieur Perrichon. Mellé's Contemporary French Writers. Matzke's Primer of French Pronunciation. Practice in pronunciation and composition throughout the year. **I4.**

[Required for Literary-Scientific and Scientific Freshmen who do not present the entrance requirements in German. Elective for Classical and Agricultural students.]

2. **Scientific French.**—Herdler's Scientific French Reader ; Readings in Scientific journals and periodicals. Grammar and composition work the same as in Course 8, both classes meeting together for language study once a week. **I3.**

[Required for Scientific Freshmen who present the entrance requirements in French. Elective for others.]

3. **A General Introduction to the History of French Literature.**—Advanced Grammar and Composition.—Duval's *Histoire de la littérature française* is made the basis of the work, and the best authors from Corneille to Renan are studied in Fasnacht's *Select Specimens of the Great French Writers*. Racine's *Athalie* and Victor Hugo's *Hernani* are read in class, but not translated. One hour a week is spent in the grammatical study of the language and in composition. Bevier's *Advanced French Grammar* is the text-book used. **I3.**

[Required for Literary-Scientific students who present the entrance requirements in French, but not in German, and for Academic students who have taken Course 1.]

4. **Learning, Literature and the Fine Arts in France during the Middle Ages and the Renaissance.**—Origin and Development of the French Language.—Lectures and supplementary reading in Modern French, upon:—Latin Literature in France from the Merovingian period to the close of the sixteenth century; early schools and the rise and growth of the University of Paris; the Renaissance; the beginnings of French literature; the great mediaeval epics—Carolingian, Arthurian, Greek and Roman; satire and the drama; the origin and development of French lyric poetry; the early art of France; Gothic architecture, and the art of the French Renaissance. One hour each week is devoted to the study of Old French and Historical French Grammar. The text-books used are:—Constans' *Chrestomathie de l'ancien français*, and Brachet and Toynbee's *Historical Grammar of the French Language*. **E3.**

5. **Literary Movements of the Nineteenth Century.**—One hour each week is given to writing French.—Text-book, Grandgent's French Composition. During the second half-year, two or more of Howell's farces are translated into French. The literary work of the course consists of lectures and collateral reading upon those writers of the century who best illustrate its literary schools and movements—Classicism, Romanticism, Realism, Parnassianism, and Symbolism. The second half-year is spent upon contemporary writers. Special attention is given to the close literary relations existing between France and other countries, particularly England and Germany. The only text-book required is Pellissier's *le Mouvement littéraire au XIX siècle*. **E3.**

[Courses 4 and 5, essentially courses in Comparative Literature, are given in alternate years, and are elective for students who have satisfactorily completed Course 2. Course 5 will be given in 1897-98. Either may be elected as a two-hour, or as a three-hour, course. Candidates for Honors in French are required to take both as full courses]

6. **Honor Work Course in French.**—The work done in this Course is equivalent to a two-hour course throughout the year, and may be taken by any properly qualified student, whether candidate for Honors or not. The subject for study varies from year to year. For 1896-97, the work assigned is a critical study of the poetry of Marie de France. The subject for 1897-98 will be a comparative study of French Classical and Romantic Tragedy as seen in Racine and Victor Hugo. Students taking this course should provide themselves with Paul Stapfer's *Racine et Victor Hugo*, and the complete dramatic works of both authors. There are no recitations, but the student pursues his studies under the constant supervision of the instructor.

[A student in the department of Arts who begins French or German in college is required to continue the study a second year.]

PROFESSOR KITCHIN

ITALIAN AND SPANISH

Whenever ten or more students desire it, a course in either Italian or Spanish will be given, but arrangements for such a course for 1897-98 must be made with the Instructor before the close of the present college year. The scope and character of the work may be indicated as follows :

1. Italian.

- a. Grandgent's Italian Grammar; Bowen's Italian Reader; Manzoni, *I Promessi Sposi*. A3.
- b. Dante; *La Vita Nuova*, entire; *La Divina Commedia*, selected cantos. *The History of Italian Literature*. B3.

2. Spanish.

- a. Edgren's Spanish Grammar; Knapp's Spanish Readings; *El Eco de Madrid*. A3.
- b. Cervantes; *Don Quixote*, selected portions. *The History of Spanish Literature*. B3.

[Both courses will not be given in the same year, but either is elective for students who have had at least one year of French in college.]

PROFESSOR KITCHIN.

GERMAN

1. Elementary Course. Joynes-Meissner, *German Grammar with written exercises*; Brandt's *German Reader*; *Gedichte*, Goethe, Schiller, Heine; Goethe's *Hermann und Dorothea*. Exercises in conversation based on the systems of Rosenthal and Meissner. 4.

[Alternative for Literary-Scientific Freshmen and for Classical Sophomores with French I; open also to Juniors.]

2. a. Composition: Joynes-Meissner, (part third) with written exercises and exercises in conversation. *Gedichte*, Goethe and Schiller (continuation, longer poems); Schiller, *Die Piccolomini* or *Wallensteins Tod*; Goethe, *Faust* (first part); Lessing, *Laokoon*.

- b. Lectures. (1). Historical and critical introductions to the pieces read in the class. (2). Outlines of German Literature from Klopstock to Heine. **E3.**
8. a. Introduction to the study of Goethe. Werther, Iphigenie auf Tauris, and selections from the second part of Faust will be read in the class. Collateral reading; Egmont and Tasso.
- b. Lectures. (1). Goethe's Life; critical studies of the works read. (2). Outlines of German Philosophy from Kant to Schopenhauer. **E2.**

PROFESSOR HUFF

[See note at end of French courses.]

PHILOSOPHY

1. Elementary Course.—Brief general Introduction to Philosophy, in lectures.—Logic; text-book, Minto's Logic Inductive and Deductive.—Ethics; text-book, Murray's Introduction to Ethics. **RIII3.**
2. Advanced Course.—Psychology; lectures and text-book; Höf-
ding's Outlines of Psychology.—Fundamental Problems
of Philosophy, lectures, theses and discussions.—Theism;
text-book, Flint's Theism. **EIV3.**
3. History of Philosophy.—Lectures and text-books; Zeller's Out-
line of the History of Greek Philosophy, Falckenberg's
History of Modern Philosophy. **EIV3.**
4. Metaphysics.—Lectures and text-book; Watson's Philosophy of
Kant, in Extracts. **EIVA2.**
5. Fine Art.—Lectures and text-book; J. Torrey's A Theory of Fine
Art. **EIVB2.**

PROFESSOR TORREY
DR. IRONS

HISTORY

1. **General History :** Under this head **Mediaeval and Modern history** will be covered in three courses. These will be given in successive years, providing thus a three-years course of consecutive historical study. Collateral reading, topical investigations, and theses will be required. **EII3;** open to **III** and **IV**.
 - a. **Mediaeval History**, from the Fall of Rome to the French Revolution. Study of mediaeval institutions, migrations, feudalism, Holy Roman Empire, papacy, crusades, towns, rise of European states, Renaissance and Reformation, colonial expansion.
 - b. **Modern European History** from the French Revolution to the Present. Study of the Revolution, its causes and effects, Napoleonic wars, readjustment of Europe, Germany, Russia, industrial revolution, political and social condition of Europe.
 - c. **American History**, North and South America. Colonial period, constitutions and society. Conflict between France and England, Revolution, Federal Union, parties, slavery, Civil War, reconstruction, social condition. The emphasis upon social development.

[Course b will be given in 1897-98.]

2. **French Revolution :** Seminar course; detailed study of the causes, principles and consequences of the Revolutionary movement in Europe. Investigation will be the method, with presentation of results before the class; supplementary lectures. A working knowledge of French will be indispensable. **EIII&IV3.**
3. **Parliamentary Government:** Seminar course in the detailed study of the origin and development of the Parliamentary system of government from Magna Charta to the Cabinet. Methods same as in Course 2. **EIII&IV3.**

SOCIOLOGY

1. **Social Theories :** Examination of various social schemes; Plato's Republic, Cicero's de Republica. Augustine's Civitas Dei, More's Utopia. Modern Theories ; Comte, Spencer, Kidd, Gumpowicz, Fouillée, Giddings. Collectivism, Communism, Socialism.
2. **Industrial Era :** a study of Modern Society under the phase of Industrialism. Industrial Revolution, inventions, factory, transportation, trade, the modern city. Reaction upon state, culture, religion; consequent reconstruction of society.
3. **Social Institutions :** an historical investigation of their origin and development; Primitive and ancient society, family, slavery, property, marriage, civil government, law, rights, classes, religion, philosophy, agriculture, industry, commerce. Lectures, with extensive collateral reading, research and theses. **EIII&IV.**

[The above courses will be given in successive years; course 2 in 1897-98.]

PROFESSOR EMERSON

POLITICAL SCIENCE

1. **Political Economy.**—Text-book, F. A. Walker's Advanced Political Economy. Lectures and discussions. **RIV3.**
2. **Constitutional History :** Cooley's U. S. Constitution.—Comparative Constitutional Law; lectures and collateral readings. International Law; Lawrence's Principles of International Law the basis of Instruction.—Political Economy, applied to open questions by lectures and discussions. **EIV2.**

PRESIDENT BUCKHAM

MATHEMATICS

1. a. Algebra.—Arithmetical and Geometrical Progression, Convergence and Summation of Series, Binomial and Exponential Theorems, Logarithms, and a brief introduction to the Theory of Equations. Text-book, Wells' College Algebra. Fifteen weeks.
- b. Solid Geometry.—Text-book, Chauvenet's Geometry. Nine weeks.
- c. Plane Trigonometry.—Text-book, Wells' Plane and Spherical Trigonometry. Thirteen weeks. **RI5.**

DR. BULLARD

2. Review of Analytical Trigonometry, followed by Spherical Trigonometry and a short course on Practical Astronomy, nine weeks. In December, Synthetical Geometry of Conics. After Jan. 1st, Analytical Geometry, lectures. **EII4.**
3. a. Differential Calculus.
- b. Integral Calculus and Differential Equations. Lectures. **E3.**
4. a. Methods used in the Solution of Problems of Construction in Elementary Geometry.
- b. Introduction to Modern Projective Geometry. Lectures. **E3.**
5. Functions of a Complex Variable, and Elliptic Functions; Elementary. Text-books, Durège, with supplementary lectures, chiefly on Conform Representation. **E3.**

[Courses 4 and 5 will probably be given in alternate years.]

PROFESSOR DANIELS

A candidate for Honors may choose his subject from studies in Analytical Geometry, Modern Geometry, Higher Algebra, Differential Equations, Mathematical Physics.

PHYSICS

1. General Physics.—Mechanics, Properties of Matter, Heat, Sound, Light, Electricity and Magnetism. Lectures, 2; *laboratory work, 2. Those electing this course should be familiar with the elements of Trigonometry.

[Required of Chemical and Engineering Sophomores.]

2. Special Course in Light.—Preston's Theory of Light and Basset's Physical Optics used as basis of lectures. Lectures, 2; laboratory work, 2.
3. Special Course in Heat.—Maxwell's or Preston's Heat and Zeuner's Thermodynamik used as basis of lectures. Lectures, 3; laboratory work, 1.
4. Special Course in Electricity and Magnetism.—Emtage's or Nipher's Electricity and Magnetism used as basis of lectures. Lectures, 2; laboratory, work, 2.
5. Mathematical Physics.—Methods of solving the Differential Equations of Physics with application to problems in Mechanics, Sound, Heat, and Electricity. Text-books used as basis of lectures :—Forsythe's Differential Equations, Rieman's Partielle Differentialgleichungen, Walton's Collection of Problems in Mechanics, Donkin's Acoustics, and Fourier's Analytical Theory of Heat. Lectures, 4.
Elective for those who have had courses in Integral Calculus and Differential Equations.

[Courses 2 and 3 will not be given in 1897-98.]

PROFESSOR SLOCUM

*The "hour" in laboratory work is equal to an hour and fifty minutes.

NATURAL SCIENCE

1. **Physiology and Hygiene.—Lectures. RI1.**
2. **Physiology, Advanced Course—Recitations from Martin's Human Body, and lectures, fully illustrated by diagrams and models. EIII&IV2.**
3. **Elements of the Biology of Animals.—Lectures and laboratory work. 2.**

[Elective for students who have taken Chemistry 1 a.]

4. **Advanced Biology of Animals.—Laboratory work in the study of Vertebrate Morphology. 3 to 12.**

[Elective for students who have taken Course 3.]

5. **Entomology.—Lectures and laboratory course in Structural and Systematic Entomology, with special reference to insects which are injurious to vegetation. B2.**
6. **Anthropology.—Lectures and collateral reading. A general survey of the ethnological, social, moral and intellectual characteristics of the principal races of the world is followed by a discussion of the origin and development of laws, government, arts, industries, language, literature and religious systems. So far as practicable the lectures are illustrated by maps, plates, photographs and specimens. EIII&IV A3.**
7. **Geology.—Recitations and lectures.—Le Conte's Elements. EIII&IV B3.**

PROFESSOR PERKINS

8. **Mineralogy, Descriptive and Determinative.—Dana's Manual of Mineralogy. A3.**

[Required of Engineering and Chemical students, open to Classical students who have taken Chemistry 1.]

PROFESSOR LOOMIS

BOTANY

1. **Elements of Botany :** During the first half-year the work deals with the structure and physiology of the Flowering Plants. During the second half a comparative laboratory study is made of selected types representing the larger orders of these plants, supplemented by field work and the determination of species. One recitation or lecture and two laboratory exercises per week. **BAgII3.**
2. **Field work in Botany :** A study of the local floral by means of lectures and field excursions. Each student will be expected to devote his attention to the study of a single order of plants or to a few related orders. **E1.**

[Open only to those who have taken Course 1 or its equivalent.]

3. **Elements of Biology of Plants :** A study of a few typical species of plants with reference to structure, physiology, development and relationship. Recitations, lectures and laboratory exercises. Text-book, Parker's Elementary Biology. **III3.**

[Elective for students who have taken Chemistry.]

4. **Advanced Laboratory Course :** Students who have taken course 1 or 3 may elect advanced work in either Plant Histology or Embryology of Plants. The subjects for investigation are chosen to meet the individual needs of those taking the course. **E3.**
5. **Plant Physiology :** A series of laboratory experiments with collateral reading, investigation of a special subject, and thesis. One lecture and two laboratory exercises per week. **EB3.**

[Elective for those who have taken Course 1 or 2.]

6. **Vegetable Pathology :** A study of the nature and causes of plant diseases. This course is offered under two heads :

- a. Lectures, collateral reading and demonstrations, the economic parts of the subject being especially considered. **R.AgIVA2.**
- b. Advanced course; includes the work of 6a and also laboratory and research work upon bacteriology and mycology. **E3.**

PROFESSOR JONES

Candidates for Honors may select from some department of Biology, Geology, or Anthropology, a subject for special and original investigation, which must be carried on under the direction of the Instructor; the results must be presented at the close of Senior year in the form of a thesis.

HORTICULTURE

1. Propagation, Nursery management, Pruning, Horticultural classification. **R.AgIIB3.**
2. Pomology, large and small fruits, with field and laboratory work and excursions to points of horticultural interest. **R.AgIIIA3.**
3. Landscape Gardening, The Philosophy of Art as applied to Landscape Study, with a consideration of the history of landscape art and a study of modern works. Lectures, illustrations, readings, and field work. **EA2.**

PROFESSOR WAUGH

4. Forestry: The Botany of native Forest Trees, with a study of Forest Management. **EB2.**

PROFESSOR WAUGH
PROFESSOR JONES

ENGINEERING

DRAWING

1. a. Mechanical drawing and lettering A*2.
b. Detail working drawings of machines. A1.
c. Construction of gear teeth. B2.
d. Analysis of valve gears, and steam engine details, A2.
2. a. Elementary projections and descriptive geometry. B3.
b. Descriptive geometry and isometric projections. A3.
c. Stereotomy. B2.
- ◆ 3. a. Topographical drawing, pen and colored topography. B1.
b. Map construction. B2.
c. Mapping surveys. A4.
4. a. Structural drawing. B4.
b. Problems in designs, B3.

PROFESSORS BARBOUR, VOTEY, and AYER, and MR. ENGLISH

SURVEYING

1. a. Use of Instruments.—Compass, level and transit; land surveying; Recitations and field work. B1.
b. Summer School of Surveying.—Land surveying, traversing, leveling and topographical surveying. One month in summer vacation.
2. a. Computing and plotting work of Summer School. A2.
b. City Surveying.—Solar Compass and Transit; Recitations, lectures and field work. B1.
c. Summer School of Surveying.—Geodetic, hydrographic and topographical surveying. One month in summer vacation.
3. a. Computing and mapping work of Summer School, A2.
b. Railroad Surveying.—Recitations and field work, B2.

PROFESSOR VOTEY

*In Drawing and Laboratory Work all "hours" are of one hour and 50 minutes duration.

MECHANICS

1. a. Forces and Motion. Recitations. Sept.-Dec. 5.
 b. Stresses in Roof and Bridge Trusses. Recitations. Dec.-April. 5.
 c. Strength of Materials ; Theory of flexure and torsion. Recitations. April-June. 5.
2. Hydrostatics and Hydraulics. Recitations. Sept.-April. 4.
3. Graphical Statics.—Study of arches, domes and retaining walls. A5.
4. Advanced Bridge Work. Lectures and recitations. B3.

PROFESSOR BARBOUR

CIVIL ENGINEERING

1. Materials, their properties, preparation and use.
 - a. Stone, Brick, Lime, Cement, Mortar, Concrete and Masonry. Lectures and laboratory work. A2.
 - b. Timber, Iron, Steel and other metals. Lectures and laboratory work. B2.
2. a. Construction of Roads, Streets and Pavements. Lectures, recitations, field and laboratory work. B2.
 b. Foundations of structures on land and in water. Lectures. A2.
 c. River Improvements; Harbor and Canal construction; Railway construction, equipment and management. Lectures. B1.
3. a. Contracts and Specifications. Lectures and recitations. B1.

PROFESSOR VOTEY

SANITARY ENGINEERING

Water Supply, Sewerage, Plumbing, Heating and Ventilation.
Lectures, drawing and laboratory work. A3.

PROFESSOR VOTEY

MECHANICAL ENGINEERING

1. a. **Elementary Mechanism.**—The Transmission of Motion by rolling and sliding contact, by linkages, and by wrapping connectors; trains of mechanism; aggregate combinations of mechanism. **A3.**
b. **Gearing and Machine Tools.**—Theory and construction of correct gear tooth curves. Construction of the driving and feed mechanisms of standard machine tools. **B3.**
2. a. **Steam Engineering.**—Analysis of plain slide valve motions by the aid of the Zeuner and Bilgram diagrams; link motions and radial reversing gears; double and detachment valve gears. Construction and use of the steam engine indicator. First and second laws of Thermodynamics; laws of perfect gases and saturated vapors; elementary theory of the Heat Engine. **A4.**
b. **Steam Engineering.**—Theory and practice of the Steam Engine. Construction and care of steam boilers. Pumps and pumping engines. Theory and construction of the injector. **B4.**
c. **Mechanical Engineering Laboratory.**—Determination of the errors of thermometers, steam gauges, planimeters and indicator springs; steam engine tests; tests of steam calorimeters. **B2.**
3. a. **Dynamics of Machines.**—Analysis and design of steam engine governors and fly wheels. Theory and design of multiple-expansion steam engines. **A3.**
b. **Motors and the Transmission of Power.**—Gas, oil and hot-air engines; hydraulic motors. Rope driving. Measurement of power. Use of compressed air. Mechanical refrigeration. **B3.**

4. **Machine Design.**—Application of mechanics to the design of steam boilers and power transmission machinery ; steam engine design. **A&B3.**
5. **Machinery and Motors.**—Elementary study of steam engines, boilers, pumps, and power transmission machinery. **A2.**

[Required of Seniors in the departments of Chemistry and Civil Engineering.]

SHOP-WORK

1. **Carpentry.** **B2.**
2. a. **Wood Turning and Pattern Making.** **A2.**
b. **Pattern Making, Moulding and Founding.** **B2.**
3. a. **Forging of Iron and Steel.** **A3.**
b. **Chipping, Filing and Lathe Work.** **B3.**
4. **Machine Shop Work.** **A&B3.**

PROFESSOR AYER
MR. EATON

ELECTRICAL ENGINEERING

- I. **Electricity and Magnetism** :—elementary principles, Ohm's law, the magnetic circuit. April–June, 2.
- II. a. **Theory of potential** ;—Wheatstone's bridge, Kirchhoff's laws, etc. Dec.–mid-year, 2.
b. **Electro-magnetic induction** :—elementary principles of dynamos. **B2.**
- III. a. **Dynamo-electric machinery** :—construction of direct and alternating current dynamos, including comparison of the various types of field and armature windings. **A4.**
b. **Electrical laboratory work** :—determination of characteristic curves, motor efficiencies, etc. **A3.**

- c. Dynamo and motor designing. Analytical and graphical treatment of circuits containing resistance and self-induction. **B4.**
 - d. Electrical laboratory work :—tests of dynamo efficiencies by means of transmission dynamometer ; determination of stray field by use of ballistic galvanometer ; practice in coupling dynamos in series and parallel. **B3.**
- IV.
- a. Electric lighting and power transmission :—discussion of arrangement of power station, including sources of power, best types, sizes and number of units, etc.; also calculations on laying out distributing system, discussion of best apparatus and relative cost. **A3.**
 - b. Analytical and graphical treatment of circuits containing resistance, capacity and mutual induction. Designing of transformers. **B2.**
 - c. Electrical laboratory work:—experiments with inertia coils and condensers ; tests of efficiencies of transformers. **B3.**
 - d. Electric railways :—use of storage batteries, multi-phase currents, rotary transformers, etc. Telegraph and telephone ; discussion of capacity effects in cables, testing, etc. Specifications. **B3.**
 - e. Multi-phase currents :—types of apparatus, arrangement of circuits, measurement of power, etc. **B2**
 - f. Electrical laboratory work :—tests of efficiency and regulation of two-phase and three-phase machines, plotting curves of alternating electro-motive force and current, etc. **B3**
 - g. Thesis :—a paper based on original research or constructive work, with the approval and under the supervision of the instructor in charge. **B2.**

PROFESSOR STORRS

CHEMISTRY

1. General Chemistry.
 - a. Lectures. **A&B2.**
 - b. Laboratory work.—Elementary experiments and elementary qualitative analysis. **A&B2.**

[Elective for students in the Classical department.]
2. Qualitative Analysis.—Advanced Course; Laboratory work, with lectures and recitations. **AorB5to8.**
3. Quantitative Analysis.—Laboratory work, with class meetings for discussion of methods. One year or longer. **8.**
4. Stoichiometry.—Lectures. **A2.**
5. Industrial Chemistry.
 - a. Assaying.—Ores, furnace products, etc. **AorB3.**
 - b. Lectures.—Inspection of constructional plans of works, with occasional excursions to manufacturing establishments, when such may be made conveniently. **B.**
6. History of Chemistry.—Lectures. Eight weeks. **1.**
7. Organic Chemistry.
 - a. Lectures.—Theory and synthesis of carbon compounds. **A&B2.**
 - b. Laboratory work.—Preparation of compounds, analyses, etc.
 - c. Commercial Organic Analysis.—Lectures. **AorB2.**

[Courses 5 b and 7 a are given in alternate years. Course 7 c is not given in 1896-97.]

Practical use of the Spectroscope is offered to students who are qualified for that order of work, at some convenient time during the four years.

PROFESSOR MERRILL
MR. GIDDINGS

AGRICULTURE

1. Soils, Tillage, Drainage, Fertilizers. Text-books, King's The Soil; Lectures, recitations and collateral reading. **RIIA5**.
2. Agricultural Grasses; a study of their botanical relationships and economic values. **RIIB1**.
8. a. Stock Feeding; animal nutrition, fodders and feeds, feeding standards and rations. Lectures, recitations and collateral reading. **RIIIA** till Dec. 4.
 b. Dairying. Lectures, laboratory work and recitations. **12**.
 [January session of the Dairy School.]
4. Stock Breeding, Breeds of Live Stock. Text-book, Miles' Stock Breeding. Lectures, recitations and laboratory work (scoring cattle). **RIIIB4**.
5. Philosophy of Evolution; its Practical Demonstration and Application in Breeding and Selecting Farm and Garden Crops. Lectures. **RIII**; elective to others having sufficient preparation.
6. Agricultural Experimentation. A critical study of principles, methods and work of American and Foreign Agricultural Experiment Stations. Lectures, seminary work, and research in preparation for thesis. **IVA1**.

PROFESSORS HILLS, JONES, AND WAUGH, AND DR. RICH

VETERINARY SCIENCE

1. Comparative Anatomy of Domestic Animals. Text-book, Strangeway's Anatomy. Lectures and recitations. **IA2**.
2. Comparative Physiology of Domestic Animals. Text-book, Kirk's Human Physiology. Lectures and recitations. **IB3**.

3. Histology. Text-book, Kirk's Human Physiology. Lectures and recitations: IIA2.
4. Diseases of Domestic Animals; Theory and practice of veterinary medicine. Lectures, recitations and clinics. IIB3.

DR. RICH

CLASSICAL DEPARTMENT

FACULTY

MATTHEW H. BUCKHAM, D. D., *Political Science*.
HENRY A. P. TORREY, A. M., *Intellectual and Moral Philosophy*.
GEORGE H. PERKINS, Ph. D., *Physiology, Geology, Anthropology*.
JOHN E. GOODRICH, A. M., *Latin*.
SAMUEL F. EMERSON, Ph. D., *History*.
NATHAN F. MERRILL, Ph. D., *Chemistry*.
ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.
LEWIS J. HUFF, *German*.
LEWIS R. JONES, *Botany*.
WILLIAM C. KITCHIN, Ph. D., *French and Italian*.
CAPT. HERBERT E. TUTHERLY, A. M., *Military Science and Tactics*.
FREDERICK TUPPER, Jr., Ph. D., *Rhetoric and English*.
ALLISON WING SLOCUM, A. M., *Mathematics*.
GEORGE E. HOWES, Ph. D., *Greek*.

REQUIRED AND ELECTIVE STUDIES

1. Candidates for the degree of A. B., after pursuing a required course of Greek, Latin, Mathematics, English and Hygiene through the Freshman year, are allowed to elect a certain number of their studies, the number increasing in the later years of the College course until the Senior year, when all studies, except those of the Military department, are elective. Each student is required to take such a number of Electives as will bring his total work up to fifteen recita-

tion or lecture hours per week, not including those of Military Drill. The abuse to which a system of perfectly free electives is liable is avoided by the requirement of a certain number of studies which are intended to secure some completeness and symmetry of discipline, while the number of electives permitted gives room for the development of special talents and the following out of individual predilections. The electives are offered in such a way as to permit extended study of any subject or group of subjects of which the student may wish to make a specialty. For example, Greek, Latin, English and Mathematics may be pursued through most of the time during the four years; French and German each for three years; Physical Science, History, and the Social, Intellectual and Moral Sciences, for from two to three years.

The electives embrace studies in Greek and Latin; French and German, including studies in Comparative Literature; the higher Mathematics, including Calculus and the New Geometry; History; Political and Social Science; English Literature; Chemistry, theoretical and applied, with Laboratory work; Geology; Botany; Zoology; Biology; Anthropology; Metaphysics; the History of Philosophy; the Theory of Fine Art.

Other subjects, in which classes are likely to be small, like Anglo-Saxon and Italian, will be offered occasionally, at such intervals as to give all students an opportunity to take them at some time during their college course.

II. Candidates for the degree of Ph. B. will have the same required courses and the same electives as candidates for the degree of A. B., except that, omitting Greek, they will begin the study of French and German one year earlier and will select in the second year from the more advanced electives.

III. Persons who may desire to take a short academic course preparatory to the study of medicine may take the first two years of the course leading to the degree of Ph. B., with any of the electives of the entire department for which they have the requisite preparation.

IV. Students in any of the other departments may, by special permission of the Faculty, take a limited number of electives from the Engineering and Chemical departments.

V. It is assumed that the choice of electives will be made by the student with reference to some clear, deliberate purpose, and as the result of consultation with members of the Faculty. In all cases the natural sequence of studies must be observed. The Faculty reserve the right to exclude a student from any course for which his previous studies have not properly prepared him.

The studies pursued and taught in the Classical department are divided into seven sections :

Languages, Mathematics, Natural Science, History, Rhetoric and English Literature, Social and Political Science, Moral and Intellectual Philosophy.

THE CHOICE OF ELECTIVES

The studies of Freshman year are all prescribed. For Classical students they are: *Greek, Latin, Mathematics, English and Hygiene*; for Literary-Scientific students Greek is replaced by *French*.

With Sophomore year the system of Elective studies begins. It is designed to start students upon those different paths which lead to specialization in different branches. It is important therefore that studies should be chosen with a view to a definite goal. The Prescribed studies of Sophomore year are *English, and one Modern language*. The Elective studies of Sophomore year are *Greek, Latin, Elementary German, Elementary or Intermediate French, History, Mathematics, Chemistry, Botany*. If Classical studies are the goal, Greek or Latin should be chosen, and German would be a valuable accessory. If it is the aim to emphasize the Literary studies, German and French should be elected. Mathematics is the best preparation for the physical sciences, and Chemistry and Botany for Biology.

Every student should endeavor to secure a working knowledge of at least one modern language, and *no language should be pursued for less than two years.*

The studies of Junior year should continue the lines elected in Sophomore year, and the studies of Senior year should complete the same, but opportunity should be secured for the enrichment presented in the Philosophical, Political, Social and Historical studies.

In this way a relatively high degree of specialization may be combined with the advantages of liberal studies.

No student, however, will be allowed to enter a course when in the opinion of the instructor his previous studies have not properly prepared him for it.

The requirement of Military instruction has recently been extended so as to include Seniors.

DEPARTMENT OF ENGINEERING

FACULTY

MATTHEW H. BUCKHAM, D. D., President, *Political Science*.
VOLNEY G. BARBOUR, Ph. B., C. E., Dean of Faculty,
Bridge Construction and Mechanics.
JOSIAH W. VOTEY, C. E., *Civil Engineering*.
HARRY A. STORRS, C. E., *Electrical Engineering*.
ARTHUR W. AYER, B. S., *Mechanical Engineering*.
GEORGE H. PERKINS, Ph. D., *Natural History*.
NATHAN F. MERRILL, Ph. D., *Chemistry*.
ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.
LEWIS J. HUFF, *German*.
HORATIO LOOMIS, Sc. D., *Mineralogy*.
WILLIAM C. KITCHIN, Ph. D., *French*.
CAPT. HERBERT E. TUTHERLY, A. M., *Military Tactics*.
FREDERICK TUPPER, JR., Ph. D., *English Language and Literature*.
ALLISON W. SLOCUM, A. M., *Physics*.
WARREN G. BULLARD, Ph. D., *Mathematics*.
JAMES EATON, *Shop Work*.
FRED STEELE ENGLISH, B. S., *Drawing and Laboratory work*.

CIVIL ENGINEERING

Instruction is given by means of lectures, recitations and work in the field, laboratory, and drawing-room. Technical essays are required at frequent intervals on topics connected with the various subjects as they are taken up. Excursions are made by the classes to engineering works and work-shops for the study of details and methods of construction.

The subjects pursued comprise:

Mathematics, including algebra, geometry, plane and spherical trigonometry, analytical geometry, calculus, and least squares; *Gen-*

eral Chemistry, Astronomy, Physics, Geology, Mineralogy, French, German, Political Economy and English.

Mechanics, including analytical and graphical determination of stresses in the various kinds of roof and bridge trusses, of the thrust and stability of arches and retaining walls, and of the flow of water in pipes and open channels. For the field work in hydraulics the department is equipped with triangular and rectangular wiers, floats and current meters, which are used by the students in determining the flow of streams.

Drawing, embracing general projection drawing, isometric, perspective and topographical drawing, shading and coloring, spherical projections and map drawing, plans of surveys, ornamentation and lettering, and the detail and working drawings of structures in wood, iron and stone. This work is carried on throughout the entire four years.

Engineering Construction, including the general properties of building material, as stone, cements, mortar, brick, wood and the metals, the construction of foundations in water and on land, and of superstructures and tunnels of railroads, canals, water works, drainage and sewerage works, and the improvement of harbors and rivers. In connection with the study of materials, tests of the strength of cements, wood, stone, iron and steel are made. For this work the department has a 2,000 pound Riehlé cement tester, a 50,000 pound Riehlé general testing machine, a Henning & Marshall electric micrometer, a Mahn extensometer, and a 200,000 pound Olsen automatic and autographic machine, fitted with a long transverse bed for beam testing.

Surveying, both theory and practice. The theory of instruments, and all the operations of surveying, laying out work, and computing, are explained in detail. The Summer School of surveying affords abundant opportunity for becoming familiar, by actual work in the field, with the methods of work and the use and adjustment of the instruments.

Highway Engineering. The general principles of the location and building of country roads and city streets are first treated, followed by the construction in detail of Macadam and Telford roads and the various forms of street pavements. Visits are made to quarries, stone-crushing plants, and roads in process of construction. The engineering laboratory has a complete equipment for testing road material.

Sanitary Engineering, including the subject of sewerage, sewage disposal, water supply, the plumbing, heating and ventilation of buildings.

Attention is also given to the preparation of *Specifications* and *Contracts*.

In bridge work the theory of stresses, and the details of construction of the various classes of bridges are taken up. Drawings and blue prints of recent constructions from leading bridge companies are used to illustrate modern practice in this work.

The Library and Reading Room are well furnished with engineering literature, the reading room being supplied with many of the American and foreign engineering periodicals.

The special studies of the department may be taken as a graduate course, occupying two years. Young men who are so situated as to be unable to take full work, but who would be glad to receive instruction in special branches, may, by permission of the President, and on giving evidence of sufficient preparation, join the classes in those studies, but they cannot be candidates for a degree.

SUMMER SCHOOL OF SURVEYING

The Field Work in surveying is carried on mainly at the Summer School of Surveying. This course is required of the students in Civil Engineering in the Sophomore and Junior classes, and permission to attend may be granted to students from any other class or department. Any young man not a member of the University, if properly fitted for the work, will be admitted to the school upon application.

Members of the University are required to pay a fee of five dollars for incidental expenses.

Text-books.—Church's Descriptive Geometry ; Merriman and Brook's Surveying ; Johnson's Surveying ; Lanza's Mechanics ; Searle's Field Engineering ; Johnson's Modern Framed Structures ; Patton's Foundations ; Merriman's Hydraulics ; Byrne's Highway Construction ; Merriman's Least Squares ; Johnson's Contracts and Specifications ; Carpenter's Heating and Ventilation.

FRESHMAN YEAR

[For explanation of letters and figures in thick type, see p. 22.]

A. Drawing*—Course 1 a, 2. **Mathematics.**—Algebra and Trigonometry, 5. **Chemistry.**—Lectures, 2. Laboratory, 2. **French or German.**—Course 1, 4. **English.**—Course 1, 2. **Hygiene.**—Lectures, 1.

B. Drawing.—Course 2 a, 3. Course 3 a, 1 (April to June). **Surveying.**—Course 1 a, 1, (April to June). **Mathematics.**—Analytical Geometry, 5. **Chemistry.**—Lectures, 2. Laboratory, 2 (until April). **French or German.**—Course 1, 4. **English.**—Course 1, 2. **Hygiene.**—Lectures, 1.

Vacation. Surveying.—Course 1 b, one month. **Engineering Thesis.**

SOPHOMORE YEAR

A. Drawing.—Course 2 b, 3. **Surveying.**—Course 2 a, 2. **Mathematics.**—Calculus, 4. Spherical Trigonometry, 1. **Physics.**—Course 1, Lectures, 2. Laboratory, 2. **French or German.**—2. **English.**—Course 2, 2.

B. Drawing.—Course 2 c, 2. Course 3 b, 2. **Surveying.**—Course 2 b, 1. **Mathematics.**—Calculus, 4. Astronomy, 1. **Physics.**—Course 1, Lectures, 2. Laboratory, 2. **French or German.**—2. **English.**—Course 2, 2.

Vacation. Surveying.—Course 2 c, one month. **Engineering Thesis.**

*In Drawing and Laboratory Work all exercises are of two hours' duration.

JUNIOR YEAR

A. Mechanics.—Course 1, 4. *Civil Engineering.*—Course 1 a, Materials of Construction, 2. *Drawing.*—Course 3 c, 4. *Surveying.*—Course 3 a, 2. *Mineralogy.*—3. *Political Economy.*—3.

B. Mechanics.—Course 1, 4. *Civil Engineering.*—Course 1 b, Materials of Construction 2. *Railroad Surveying.*—Course 3 b, 2. *Drawing.*—Course 4 a, 2. *Highway Engineering.*—Course 2 a, 2. *Geology.*—3. *Political Economy.*—3.

Vacation. Engineering Thesis.

SENIOR YEAR

A. Mechanics.—Course 2, Hydraulics, 4. Course 3, Graphical Statics, 5. *Sanitary Engineering.*—3. *Civil Engineering.*—Course 2 b, Foundations, 2. *Drawing.*—Course 4 a, 4.

B. Mechanics.—Course 4, Advanced Bridge Work, 3. *Civil Engineering.*—Course 2 c, 1; Course 3 a, Contracts and Specifications, 1. *Drawing.*—Course 4 b, 3. *Machinery and Motors,* 2. *Mathematics.*—Least Squares, 2. *Hydraulic Field Work.* Graduating Thesis.

MECHANICAL ENGINEERING

The instruction in Mechanical Engineering aims to give the student such a training as will enable him to become a successful designer of machinery, or to approach from the best standpoint any problem relating to the generation, transmission or application of power. The ground work of this training is given by means of recitations and lectures covering the general theory and practice of the subjects treated, and these are supplemented by extended courses in the drawing-room and workshops, and in the engineering laboratory.

No strictly professional subjects are taken up in the Freshman year, but much time is devoted to mathematics and drawing, these being considered the most important factors in the work of the fol-

lowing years. The Sophomore year is devoted to the more elementary subjects of the profession, such as elementary combinations in machines, gear-tooth construction, and the mechanism of machine tools. The Junior year is devoted almost wholly to steam engineering, and the Senior year to machine design and to advanced and special lines of professional work. Outside the department, instruction is given in English, French, German, the higher mathematics, chemistry, physics and general mechanics.

Shop Equipment. The carpenter and pattern shop contains, in addition to twelve carpenter benches, and a full line of tools for manual work, seven wood-turning lathes, an eighteen-inch pattern-maker's lathe, two circular saws, and scroll saw. The foundry is supplied with a cupola furnace, brass furnace, core-oven and accommodations for six students in moulding. The forge shop contains eight forges and anvils, a hand drill, a punching and shearing machine, and all the hand tools necessary for instruction in this branch. The machine shop is equipped with filing and chipping benches, four engine lathes, two hand lathes, a planer, a shaping machine, two upright drills, a milling machine, a grinding machine, and emery wheels.

Mechanical Engineering Laboratory. A twenty-five horse power Harris-Corliss engine, which also provides power for the shops, a smaller vertical engine, and a fifty horse-power tubular boiler are available for engine and boiler tests. A surface condenser and air pump may be used in connection with the engine during tests. The laboratory contains also two steam pumps, a twelve-inch weir with hook-gauge, a friction brake, indicators and planimeters, several calorimeters, a steam injector arranged for testing, a steam-gauge tester, apparatus for measuring the flow of steam, and numerous minor pieces of apparatus used in connection with these.

FRESHMAN YEAR

[See Note at top of p. 22.]

A. Mathematics.—Higher Algebra and Plane Trigonometry, 5. **Chemistry.**—Lectures, 2; Laboratory, 2. **Drawing.**—Elementary

Mechanical Drawing and Lettering, 2. *French* or *German*, 4. *English*.—Course 1, 2. Hygiene, 1.

B. Mathematics.—Analytic Geometry, 5. *Chemistry*.—Lectures, 2; Laboratory 2. *Drawing*.—Elementary Projection, 3. *French* or *German*, 4. *English*.—Course 1, 2. Hygiene, 1. *Shopwork*.—Carpentry, 2.

SOPHOMORE YEAR

A. Mathematics.—Calculus, 4. *Mechanical Engineering*.—Elementary Mechanism, 2. *Drawing*.—Details of Machines and Making of Blue Prints, 1. *Physics*.—Course 1, 4. *French* or *German*, 2. *English*.—Course 2, 2. *Shopwork*.—Wood-turning and Pattern Making, 2.

B. Mathematics.—Calculus, 4. *Mechanical Engineering*.—Gear-Teeth and Mechanism of Machine Tools, 3. *Drawing*.—Details of Machines and Construction of Gear-Teeth, 2. *Physics*.—Course 1, 4. *French* or *German*, 2. *English*.—Course 2, 2. *Shopwork*.—Pattern Making, Molding, and Founding, 2.

JUNIOR YEAR

A. Mechanical Engineering.—Valve Gears, Indicators, and Thermodynamics, 4. *Drawing*.—Analysis of Valve Gears and Steam Engine Details, 3. *Mechanics*.—Course 1, 4. *Political Economy*, 3. *Shopwork*.—Forging, 3.

B. Mechanical Engineering.—Thermodynamics, Boilers, Pumps, and Injectors, 4. *Drawing*.—Assembly Drawings of Machines, 2. *Mechanical Engineering Laboratory*.—Engine and Calorimeter Tests, 2. *Mechanics*.—Course 1, 4. *Political Economy*, 3. *Shopwork*.—Chipping, Filing, and Lathe Work, 3.

SENIOR YEAR

A. Mechanical Engineering.—Dynamics of Machines, 3; Machine Design, 3. *Hydraulics*, 4. *Materials of Construction*, 2. *Shopwork*.—Machine Shop, 3.

B. Mechanical Engineering.—Motors and the Transmission of Power, 3 ; Machine Design, 3. *Mechanical Engineering Laboratory.*—Boiler, Pump, and Power tests, 2. *Materials of Construction*, 2. *Shopwork.*—Machine Shop, 3. *Theses.*

ELECTRICAL ENGINEERING

Descriptive statements of the Electrical Engineering course and of the facilities for work afforded by the laboratories and shops may be found in the bulletins of the Engineering department. Broadly it may be stated that it is the aim of this course to provide the student with a substantial working knowledge of the fundamental principles underlying all engineering practice, and especially to instruct him as thoroughly as time will permit in the theory and uses of electrical instruments and machines.

Preparatory to the technical subjects are the courses in English, modern languages, mathematics, drawing and chemistry; then follow mechanics, physics, thermodynamics, etc.; and finally steam engineering, hydraulics, engineering construction and electrical engineering. About half the student's time during Junior and Senior years is devoted to the several subjects included under courses III and IV of Electrical Engineering (See page 40). Courses I and II, which have not been offered previously to the present year, are intended to present some fundamental principles in their practical bearing in electrical work, in order to stimulate and guide the student in his reading and observation during Freshman and Sophomore years: they also serve as introduction to the more technical work of the last two years.

Throughout the course the lecture-room instruction is supplemented by practical and experimental work in the laboratories and shops. Excellent facilities are furnished in the Williams Science Hall for all laboratory work in physics, chemistry, electricity and magnetism. For the use of students in electrical engineering there

are now provided dynamos and motors ranging in size from one-twelfth to thirty-three horse-power, including single, two- and three-phase machines, as well as many of older types; also many kinds of transformers, batteries, lamps and measuring instruments. Through the generosity of Dr. Williams the present equipment is being steadily increased, thus insuring to future students abundant facilities for thorough practical training.

The following are the required studies leading to the degree of B. S. in Electrical Engineering.

FRESHMAN YEAR

[See Note at top of p. 22.]

A. Mathematics.—Higher Algebra and Trigonometry, 5. **Chemistry.**—Lectures, 2; Laboratory, 2. **Modern Languages;** French or German, 4. **Natural Science,** 1, 1. **English,** 2. **Drawing** 1 a, 2.

B. Mathematics.—Analytical Geometry, 5. **Modern Language,** 4. **English** 1, 2. **Natural Science** 1, 1. **Drawing** 1 b, 3. **Chemistry.**—Lectures, 2. Laboratory, 2. [This laboratory work ends in March]. **Electrical Engineering** 1, 2.

SOPHOMORE YEAR

A. Mathematics.—Calculus, 4. **Physics** 1, 4. **Modern Language,** 3. **Mechanical Engineering** 1 a, 3. **Drawing** 2 d, 1. **English** 2, 2. **Shopwork,** 2. [Ends at Thanksgiving recess]. **Electrical Engineering** 2 a, 2.

B. Mathematics.—Differential Equations, 3. **Physics** 1, 4. **Modern Language,** 3. **Mechanical Engineering** 1 b, 3. **Drawing** 2 e, 3. **English** 2, 2. **Electrical Engineering** 2 b, 3.

JUNIOR YEAR

A. Electrical Engineering 3 a, 4, and 3 b, 3. **Mechanics** 1 a, 4. **Mechanical Engineering** 2 a, 4. **Drawing** 3 b, 2.

B. *Electrical Engineering* 8 c, 4, and 8 d, 3. *Mechanics* 1 b, 4. *Mechanical Engineering* 2 b, 4, and 2 c, 2.

SENIOR YEAR

A. *Electrical Engineering* 4 a, b and c. *Mechanics* 2 a. *Physics* 5. *Shopwork*.

B. *Electrical Engineering* 4 d, e, f and g. *Physics* 5. *Mechanics*. —Field work in hydraulics. *Shopwork*.

DEPARTMENT OF CHEMISTRY

FACULTY

MATTHEW H. BUCKHAM, D. D., President.

NATHAN F. MERRILL, Ph. D., *Chemistry*.

HORATIO LOOMIS, Sc. D., *Mineralogy*.

GEORGE H. PERKINS, Ph. D., *Natural History*.

LEWIS J. HUFF, *German*.

WILLIAM C. KITCHIN, Ph. D., *French*.

ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.

FREDERICK TUPPER, Ph. D., *English Language and Literature*.

ALLISON W. SLOCUM, A. M., *Mathematics and Physics*.

HARRY A. STORRS, C. E., *Electrical Engineering, Drawing*.

CAPT. HERBERT E. TUTHERLY, A. M., *Military Science and Tactics*.

HARRY D. GIDDINGS, B. S., *Chemistry*.

In this Department, during the first year, the student attends about seventy lectures and recitations in General Chemistry, and as soon after the beginning of the year as it seems advisable, enters the laboratories where he pursues graded and systematic work, beginning with a schedule of experiments designed to illustrate fundamental principles and cultivate familiarity with the common ele-

ments and their compounds. From the outset quantitative methods are followed as far as practicable.

Qualitative Analysis is next studied. The work includes the use of the spectroscope and the examination of commercial products. Lectures and recitations continue through the course.

After the completion of Qualitative Analysis, Quantitative Analysis is begun, the student proceeding through the simpler determinations to more difficult analyses. The course embraces gravimetric and volumetric methods with applications to analysis of commercial products. Occasionally the students meet together and present statements of work done in the laboratory with discussion of methods, etc. In this way each student may derive benefit from the work done in the laboratory by the entire class.

In the Junior or Senior year Organic Chemistry is taken up both in the class-room and in the laboratory. This course involves the preparation of organic compounds and their analysis. Students of ability will be encouraged to undertake original investigations under the special supervision of the head instructor.

Lectures are given upon Industrial processes and these lectures are occasionally supplemented with excursions to manufacturing establishments. In the third year facilities are offered, and instruction is given, in Crystallography, Mineralogy, and Assaying of Ores by both fire assay and wet assay. A short course of lectures on the History of Chemistry is given.

During the Senior year instruction is given in those parts of mechanical engineering which have a direct bearing upon the chemical industries. This work includes lectures upon prime movers, boilers and pumps, the elements of machines, and the proportioning of shafting, pulleys and belts, together with some actual practice in the management of boilers and steam engines.

FRESHMAN YEAR

[See Note at top of p. 22.]

A. R.—Chemistry, Lectures, 2. Laboratory,* 2. Mathematics, 4. Drawing, 4. English, 1. French, 4.

B. R.—Chemistry, Lectures, 2. Laboratory, 2. [Regular candidates for the degree in Chemistry will be required to give from three to four hours to laboratory work.] Mathematics, 4. English, 4; French, 4.

SOPHOMORE YEAR

A. R.—Laboratory, 5 to 8. Physics, 4. German, 4. English, 2, 2. —Analytics, 3. History, 4. French, 4.

B. R.—Laboratory, 5 to 8. Physics, 4. German, 4. English, 2, 2. **E.**—Mathematics, History or French as in first half-year.

JUNIOR YEAR

A. R.—Laboratory, including Mineralogy, Blow-pipe Determinations and Assaying, 7 to 9. Stoichiometry, 2. Physiology, 2. **E.**—German, 3. Calculus, 2.

B. R.—Laboratory, 7 to 9. Commercial Organic Analysis, 2. Physiology, 2. **E.**—German or Calculus as in first half-year.

SENIOR YEAR

A. R.—Laboratory, 7 to 9 hours. Organic Chemistry, lectures, 2, Machinery and Motors, 2. English, 1.

B. R.—Laboratory. Organic Chemistry, lectures, 2. Industrial Chemistry. History of Chemistry. Geology, 3. Theses.

NOTE. The lectures in Organic Chemistry and in Industrial Chemistry are usually given to Juniors and Seniors together, in alternate years.

*Laboratory "hours" are of double length.

Students who begin French in Freshman year and German in Sophomore year must continue French through Sophomore year. Students who begin German in Sophomore year and finish French in that year, must continue German during Junior year. A two years' course in both French and German is required.

After Freshman year students will be required occasionally to write essays upon subjects relating to their principal study, and these will be criticised with respect to their correctness as English compositions.

Certain of the studies of the Senior Year in the Classical department may be optional with a corresponding amount of laboratory work throughout this year.

All the courses in Chemistry are open as electives to such students in the Classical and Literary-Scientific departments as are qualified to pursue them.

It is desirable that applicants for admission to full standing in the Chemical department as candidates for its degree should have had the regular classical course—the usual preparation for college—at some school whose certificates are recognized by this University. In case of deficiency in Latin or Greek or in both of those languages in the preparatory course, the applicant may present himself for examination in French or German or in both; and satisfactory attainments in the elements of these languages will be accepted in lieu of Greek and Latin.

Students showing proper qualifications may be admitted to a special course in Chemistry by permission of the President and of the Professor of the department; but such students cannot receive the degree.

DEPARTMENT OF AGRICULTURE

FACULTY

MATTHEW H. BUCKHAM, D. D., President, *Political Science*.

JOSEPH L. HILLS, B. S., *Agricultural Chemistry*.

VOLNEY G. BARBOUR, Ph. B., C. E., *Surveying*.

GEORGE H. PERKINS, Ph. D. *Natural History*.

SAMUEL F. EMERSON, Ph. D., *History*.

NATHAN F. MERRILL, Ph. D., *Chemistry*.

ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.

LEWIS J. HUFF, *German*.

JOSIAH W. VOTEY, C. E., *Surveying and Road Making*.

HORATIO LOOMIS, Sc. D., *Mineralogy*.

LEWIS R. JONES, Ph. B., *Botany*.

ARTHUR W. AYER, B. S., *Mechanical Engineering*.

WILLIAM C. KITCHIN, Ph. D., *French*.

FREDERICK TUPPER, Jr., Ph. D., *Rhetoric and Elocution*.

ALLISON W. SLOCUM, A. M., *Mathematics and Physics*.

FRANK A. RICH, V. S., M. D., *Veterinary Medicine and Stock
Breeding*.

HEMAN B. CHITTENDEN, A. M., *English*.

FRANK A. WAUGH, M. S., *Horticulture*.

WARREN G. BULLARD, Ph. D., *Mathematics*.

MATHEW MICHELS, *Dairying*.

JOHN C. ROBINSON, *Dairying*.

CAPT. HERBERT E. TUTHERLY, A. M., *Military Science and Tactics*.

The studies of the Agricultural Department are intended to impart both the theoretical and the practical knowledge necessary to success in farming, and at the same time to include enough of mathematics, literature, science and philosophy for a good general scientific education.

Agriculture occupies a leading place in the course for three years. The course in Chemistry given during the Freshman year enables one to gain a more thorough understanding of soils and fertilizers ; while the instruction in Botany, begun in the first half of Sophomore year, prepares the way for the intelligent consideration of the values, uses and cultivation of grasses and forage plants and crops of all kinds.

Stock Feeding and Breeding are taught by lecture, text-book, and practical application. The students are instructed in the principles of animal nutrition, the adaptability of various fodders and feeds for farm purposes, and the better methods of feeding. Abundant opportunity for illustration of breeds of live stock and for instruction in scoring animals is afforded at the Farm and in the near vicinity.

Exceptional facilities for instruction in dairying are afforded in connection with the Dairy School, where several of the better styles of separators, churns, butter-workers, milk testers, etc., are in use, and the student has the opportunity to become familiar with the various systems of handling milk, and expert in manipulating the apparatus.

A critical study of the principles, methods and work of American and foreign Agricultural Experiment Stations is made, with lectures and seminary work in preparation for, and as a guide to, creditable investigation work for theses.

Botanical subjects are studied during the last three years of the course. The work begins with a careful study of the plant cell as fundamental to an understanding of the structure and the physiology of the flowering plants. In the work upon Systematic Botany especial attention is given to the grasses, the clover family, weed-plants and trees. Following this is a study of typical species of the lower plants with special reference to their structure, physiology, development and relationship. Elective courses in Physiology of Plants and in Advanced Biology offer opportunity for further work along simi-

lar lines. During the Senior course in Vegetable Pathology a study is made of the nature and causes of plant diseases and the remedies for the same. The spraying apparatus used in the Experiment Station work, the facilities of the green-house, and collections of dried and alcoholic specimens furnish opportunities for work of a thoroughly practical nature.

The new botanical laboratories are supplied with simple and compound microscopes, paraffin baths, microtomes, ovens, etc., for bacteriological work, and apparatus for the experimental study of the physiology of plants. The herbariums of the University and Experiment Station are open to students who are prepared to use them with profit.

An elective course offers opportunity for more extended laboratory study of bacteria and fungi, including preparation and uses of nutrient media, pure cultures, etc.

Horticulture is required of students in the Agricultural course through one year; and an additional required half-year's work (see Agriculture 5) applies equally to agriculture and horticulture. As far as possible horticulture is brought into vital connection with modern scientific thought. The student is prepared to solve whatever problems may confront him, rather than taught by rote the empiricisms of past experience. Every effort is made to secure directness and accuracy in original investigation, and to foster an intelligent love for horticultural pursuits. Orchards, gardens, green-houses and laboratories are open to constant use.

Veterinary Science is a required study during one-half of the course. The student learns first the general structure of domestic animals by lectures, by the examination of charts, models, and museum specimens, and by the dissection of the animals themselves. The physiology of domestic animals is next studied, then the microscopic structure of the various parts. The common diseases and their remedies are discussed in lectures, and free clinics are held for studying these diseases in the living animals. The subjects of inoculation,

disinfection and immunity are considered in connection with the study of contagious diseases.

The required work in mathematics includes Solid Geometry, Advanced Algebra, Trigonometry and Land Surveying.

More or less extended courses are required in Chemistry, Biology, Entomology, Mineralogy, Geology, English, and either French or German.

Electives. During the Sophomore year students may elect Mathematics, Physics, Chemistry, or Modern Languages, and during the last two years they are allowed to select studies under the advice of instructors from any of the academic departments of the University.

The Billings Library and that of the Experiment Station are well supplied with standard works in the various departments of agriculture, and the leading agricultural, horicultural and botanical journals are found in the reading-room.

Students in the Agricultural department are subject to the same regulations and requirements as other students, except that residents of Vermont are not required to pay tuition. There is opportunity for several students to defray a part of their expenses by work.

SHORT COURSE IN AGRICULTURE

Students who do not wish to take the full four years' course may take a special course of one year, or of two years, selecting such studies as they are fitted to pursue. Such students may receive Certificates of Proficiency, but are not candidates for a degree.

FRESHMAN YEAR

[See Note at top of p. 22.]

A. Veterinary Science—Comparative Anatomy of Domestic Animals, 2. **Mathematics**—Algebra and Geometry, 5. **Chemistry**, 4. **English**, 4. **Hygiene**—Lectures, 1.

B. *Veterinary Science*—Comparative Physiology of Domestic Animals, 3. ***Mathematics***—Algebra and Trigonometry, 5. ***Chemistry***, 4. ***English***, 4. ***Hygiene***, 1.

SOPHOMORE YEAR

A. *Agriculture*—Soils, Tillage, Drainage, Fertilizers, 5. ***Botany***, 3. ***Veterinary Science***—Histology, 2. ***English***, 3. ***Electives***—Physics, Chemistry, Mathematics, French or German.

B. *Agriculture*—Grasses, 1. ***Botany***, 3. ***Horticulture***, 3. ***Veterinary Science***—Diseases of Animals, 3. ***Surveying***, 2. ***English***, 3. ***Electives***—Physics, Chemistry, Mathematics, French or German.

JUNIOR YEAR

A. *Agriculture*—Stock Feeding, Dairying, 4. ***Horticulture***, 3. ***Biology***, 3. ***French or German***, 4. ***Electives***—Physics, Landscape Gardening, Shopwork, English.

B. *Agriculture*—Stock Breeding, Breeds of Live Stock, 3; Plant Breeding, 3. ***Biology***, 3. ***French or German***, 4. ***Electives***—Physics, Forestry, Plant Physiology, Shopwork, English.

SENIOR YEAR

A. *Agriculture*—Experimentation and Research, 3. ***Vegetable Pathology***, 2. ***Mineralogy***, 3. ***Electives***—Bacteriology and Mycology, Shopwork, Political Science, Anthropology, History, French or German, English.

B. *Entomology*, 2. ***Geology***, 3. ***Original Investigation for Thesis***, 3. ***Electives***—Bacteriology and Mycology, Shopwork, Political Science, Vegetable Pathology, Road Making, History, French or German, English.

DAIRY SCHOOL

The fifth annual session of the Dairy School began on Monday, January 4, 1897, and closed on Saturday, January 30th. The school

is designed to teach in a practical manner the manufacture of butter with the latest and most approved apparatus. Two courses aggregating about forty-five lectures are given on the constitution and production of milk, its creaming and churning, best methods of handling, testing, etc. Actual work with dairy machinery is given each day.

STUDENTS IN THE DAIRY SCHOOL

Charles G. Adams, S. Windham	Burt W. Kidder, Bradford
Henry D. Allbee, S. Newbury	Perley A. Kincaid, Proctorsville
Henry D. Allen, Jacksonville	Erwin Leonard, Middletown Spa.
Alonzo Bailey, Island Pond	Waldo Leonard, Barton Landing
John G. Bedard, St. Albans	Arthur L. Lewis, Bethel
Charles A. Bigelow, E. Brookfield	Jas. N. Longley, St. Albans Bay
Geo. C. Campbell, Barton Landing	Sam'l B. McFeeters, Sheldon Spa.
Edw. L. Child, Cornish Flat, N. H.	James B. Maloney, Sheldon
Oscar E. Colburn, Braintree	Frank H. Melendy, Pomfret
Clark A. Corliss, St. Albans Bay	Josiah Morse, Danville
Henry L. Crandall, Windsor	Charles S. Moxley, E. Bethel
Charles E. Crane, Bridport	Harry F. Nelson, E. Hardwick
Halsey L. Dunton, Franklin	Oscar H. Perrin, Rupert
Walton H. Farr, Westminster	Silas H. Poronto, Montgomery
B. Smith Gallup, W. Charleston	Leon H. Richardson, Bethel
John P. Hale, E. Hardwick	Carl C. Rollins, Heath
E. K. Hill, Danville	Fred A. Smith, Northfield
Robert I. Holbrook, Townshend	Geo. Sumner, W. Brookfield
John W. Hulitt, E. Hubbardton	Burt D. Thomas, Brandon
Albert E. Hurlbut, St. Albans	Ira H. Waller, St. Albans
Burton C. Jennings, Walden	Charles H. Waterhouse, Windsor
Samuel H. Jewett, Middlebury	Frank E. Yeaw, Brattleboro
Albion E. Johnson, Newbury	

STUDENTS OF MEDICINE

Arrangements are made between the Academic and Medical departments by which a candidate for the degree of A. B. or Ph. B.

may count certain Medical studies of the first year as equivalents for part of his last year's Academical studies, and in this way may abridge by one year the time necessary for taking his degrees in both departments.

MILITARY INSTRUCTION

In accordance with an Act of Congress, an officer of the United States Army is stationed at the University as Professor of Military Science and Tactics, and male students in the departments of Arts and Sciences are required to take part in military drill and instruction three hours each week. A neat, inexpensive uniform is worn during drill.

The drills take place twice a week and are so conducted as to afford healthful exercise, which, while not severe, tends to develop an erect figure and carriage. A building 150 by 70 feet is used as an armory, and a course of military gymnastics is combined with the drills. The military discipline, though enforced only during the hours for drill, is designed to develop soldierly honor and those ideas of promptness, order and obedience to lawful authority which are applicable to all callings in life.

The theoretical instruction is given to each class once a week by recitations, lectures, and practical work. It embraces, besides the Drill Regulations of the U. S. Army, the elementary principles which govern the art of war, such as officers of a volunteer army should be conversant with upon first being called into the field.

Students are marked as in other courses of instruction, and upon the graduation of each class, the names of those students who have shown especial aptitude for military service are reported to the United States War Department and to the Adjutant General of the State, and the names of the three most distinguished students in Military Science and Tactics are inserted in the United States Army Register.

MILITARY ORGANIZATION

The students are organized into a battalion, consisting of four companies. The officers are taken from the Senior class, the sergeants from the Junior class, and the corporals from the Sophomore class.

The following is the Roster of officers and non-commissioned officers for the present year :

MAJOR

Frederick B. Willard

CAPTAINS

- | | |
|-----------------------|---------------------|
| 1. Henry W. Clark | 3. Charles F. Clark |
| 2. George E. P. Smith | 4. George M. Hogan |

FIRST LIEUTENANTS

- | | |
|----------------------|-------------------------|
| 1. Almon B. Stetson | 4. James L. Davis |
| 2. Fred K. Jackson | 5. Frederick F. Lincoln |
| 3. William W. Murray | 6. Gay W. Felton |

SECOND LIEUTENANTS

- | | |
|----------------------|----------------------|
| 1. Lemuel P. Adams | 3. George M. Burdick |
| 2. Charles A. Coburn | |

SERGEANT-MAJOR

Merton C. Robbins

FIRST SERGEANTS

- | | |
|---------------------|----------------------|
| 1. Perley O. Ray | 3. Roy L. Patrick |
| 2. Harris H. Walker | 4. Julius S. Turrill |

QUARTERMASTER-SERGEANT

John C. Torrey

SERGEANTS

- | | |
|--------------------------|-----------------------|
| 1. William J. Russell | 7. Samuel H. Hamilton |
| 2. Walter T. Mott | 8. Warren J. Morse |
| 3. William S. Bean | 9. Louis C. Dodd |
| 4. Frank W. Ward | 10. Ernest H. Bell |
| 5. Harry F. Perkins | 11. Albert F. Lowell |
| 6. Charles S. Van Patten | |

CORPORALS

- | | |
|-------------------------|------------------------|
| 1. Max W. Andrews | 9. Samuel C. Dunlop |
| 2. Clarence W. Richmond | 10. Guy P. Lamson |
| 3. G. Eugene Holden | 11. George H. Burrows |
| 4. Wait C. Johnson | 12. Robert A. Lawrence |
| 5. Frank F. Finney | 13. Ernest J. Ewing |
| 6. Charles H. Parker | 14. Harry W. Smith |
| 7. Edward C. Wright | 15. Alvin A. Taylor |
| 8. Charles A. Bigelow | 16. Warren R. Austin |

REGULATIONS

ABSENCES

1. The absences of students shall be in charge of a Committee of the Faculty.

2. Students in all departments of the University, with the exception of those in the Medical Department, are required to attend Prayers in the Chapel on all mornings when they have a college exercise the first hour.

3. Students not in their seats at Chapel when the bell ceases tolling will be marked absent.

4. A student's unexcused absences from Chapel exercises must not exceed twenty-five per cent. of the whole number of the exer-

cises which he is obliged to attend under § 2. Such unexcused absences shall be treated as those specified in §§ 7 and 8.

5. Excuses for absence will in general be granted only for sickness, and for absence incurred by students who are obliged wholly or in part to support themselves, while actually engaged in work for such support.

6. The number of unexcused absences which are allowed in any subject during the half-year shall be the same as the number of exercises held weekly in that subject. Thus in a two-hour course, two absences will be allowed during the half-year ; in a three-hour course, three absences, etc.

7. A student whose unexcused absences during a half-year exceed the number allowed in § 6 shall be placed on probation, and his parent or guardian shall be notified of his delinquency. A student who is placed on probation shall not be allowed to take part in the work of any students' organization which represents the University, such as the Base Ball Nine, the Glee Club, etc., nor shall he attend the convention of any secret society or other organization meeting out of town.

8. A student who, after being placed on probation, shall incur further unexcused absence from required exercises in the same study in which he has been delinquent, shall be suspended on vote of the Absence Committee for a period of not less than ten days. While under suspension a student, if he live away from Burlington, shall be required, in case the Absence Committee so direct, to return to his home. If his home be in Burlington, he shall be required to absent himself from the University grounds.

9. No student absent from an examination without leave shall be allowed to take a subsequent examination in that subject except by a special vote of the Faculty. Application for such leave of absence must be presented in writing to the Absence Committee previous to the examination.

10. No student may be absent from Burlington, when such absence involves failure to attend any required exercise, without the permission of the Absence Committee; and leave of absence for the purpose of attending the exercises of any students' organization must also be obtained beforehand from the Committee.

11. After a Recess, work will be resumed with the first afternoon exercise.

12. For one day before and after a Recess each absence shall count as two.

13. Excuses for absence must be put in writing, dated and signed, and deposited with the Secretary of the Absence Committee. Such excuses must be presented within two weeks after the absences were incurred; otherwise they will not be considered by the Committee. In case of sickness the Committee may require the certificate of a physician.

No student will be permitted to join or continue as a member of any athletic, musical, or other similar college organization unless he maintain a fair standing in all the studies of his course. The membership of such organizations shall be subject to the approval of the Committee on Studies.

ATHLETICS

1. No athletic contest shall take place before four o'clock in the afternoon on any day but Saturday.

2. All arrangements or schedules for contests to take place out of Burlington must be submitted for approval to the Athletic Committee.

3. No athletic organization shall be absent for more than three consecutive college days exclusive of Saturday.

4. At least two weeks before an opening contest, the manager of any athletic organization shall submit to the Athletic Committee for its approval a list of candidates for the team.

EXAMINATIONS

At the close of each half-year students are examined in the studies of that half-year. The examinations are written, or oral, or both, at the discretion of the instructor. A record is kept of the results of these examinations, and a transcript of each student's record is sent to his parent or guardian.

Any matriculant who fails in the regular examination in any subject, and fails also to pass a re-examination in that subject within one year, shall become a Special student and be so classed in the annual catalogue. A Special student may at any time be restored to regular standing by vote of the Faculty, upon his making up all back work and presenting satisfactory reasons for his failure to perform the work within the prescribed time.

In the case of Seniors all delinquencies up to the close of Junior year must be made up by the end of the first half of Senior year. Those who fail so to do shall thereupon cease to be candidates for a degree.

SPECIAL STUDENTS

All students who are not candidates for a degree are classed as Special Students.

Such students are required to submit their choice of studies to the Committee on Studies in the same manner as regular students.

Special students are not eligible to scholarships. They will be charged \$10 a half-year for each full course of study (8 hours or more), and \$5 for each half course (2 hours or less); \$5 for the use of the Library, and \$5 as Registration fee; but in no case shall a Special student be required to pay more than the full tuition fee. For Laboratory fees see Laboratory courses.

Those who fall into this class by delinquency, or by failure to meet in full the requirements of the curriculum, are subject to the same regulations as matriculate students.

Such students as pursue only a partial course of study may not become members of students' organizations except by vote of the Faculty. They are required to drill unless excused by the Faculty.

RELIGIOUS SERVICES

The institution, while not connected with any particular denominational body, and having members of many communions in its Board of Instruction, aims to impress religious truths and obligations upon all students. A responsive Religious Service is held every morning in the College Chapel, which the students are required to attend.

A flourishing Young Men's Christian Association of students is maintained, and is in close union both in sympathy and co-operative work with the Young Men's Christian Association of the city. The young women of the University also maintain a similar organization. The numerous churches of the place give to the students hospitable welcome to their services and activities. A voluntary Bible Class of students is conducted by the President on Sunday afternoons in the College building.

HONORS

Honors may be awarded at graduation for General High Standing in Scholarship, and also for conspicuous attainments in any one of the departments named below.

The candidate for Honors in general scholarship must have attained grade A in at least one-half of his work, grade B in at least one-half of the remainder, and have fallen below grade C in no department or subject.

Honors may be granted by the Faculty for unusual proficiency in any of the subjects following: Greek, Latin, French, German, English, History, Philosophy, Political Science, Mathematics, Biology, Chemistry, Physics, Mechanics, under these conditions: The candidate must have taken with credit the equivalent of six three-hour courses (i. e. eighteen lecture "hours" or "periods" extending

through the year) in the subject offered, or in such cognate subjects as may have been designated or accepted by the Head of the department in which honors are sought. He must also have passed satisfactorily a special examination in such additional work as may have been accepted or assigned by the instructor ; or have presented a satisfactory thesis on a subject previously approved ; or have fulfilled both these conditions, as the instructor in charge of the department may determine.

Applicants for Honors in special fields must make application to the Faculty in writing not later than December 1 in their Senior year ; and must present their theses and be ready for the special examination not later than May 10.

The Honors awarded at graduation shall be indicated on the Commencement program, and the graduate who wins this distinction shall have the words *cum laude*, *magna cum laude*, or *summa cum laude*, inscribed on his diploma, the special addition to be determined by vote of the Faculty.

On the morning of Commencement Day an Honor List shall be published, containing the names of all who have gained honors at graduation ; of all who have won prizes during the year ; of those who are appointed to speak at commencement ; and of such other graduates as may have presented essays or theses of conspicuous merit. This shall be posted on the official Bulletin Board, and in the Library, and copies shall be placed on sale. This List shall also be printed in the next annual catalogue, with the names of the speakers on Founder's Day, and of those graduates whose proficiency in Military Art and Science has gained for them a recommendation to the Adjutant-General of the State, and to the War Department of the United States.

DEGREES

For the degrees of Bachelor of Arts and Bachelor of Philosophy, see page 17.

DEGREES IN SCIENCE

The Degree of Bachelor of Science *in Civil Engineering*, or *in Electrical Engineering*, or *in Mechanical Engineering*, is conferred upon students in the Engineering department who shall complete the courses of study corresponding respectively to these titles.

The Degree of Bachelor of Science *in Chemistry*, is conferred upon the completion of the work required by the department of Chemistry.

The Degree of Civil Engineer may be conferred upon Bachelors of Science of this University, who have taken the Bachelor's degree for work in Civil Engineering, if they furnish satisfactory evidence that they have pursued further technical studies for at least one year, and in addition have engaged in professional work in positions of responsibility for another year.

The first of the above requirements may be satisfied by pursuing at the University, under the direction of the Faculty, a prescribed amount of study for a time, not necessarily consecutive, equivalent to a college year. If the candidate does not reside at this University, his course of study must be approved in advance by the Professor of Civil Engineering, and he must prepare a satisfactory thesis on some engineering topic, to be presented together with a detailed account of his professional work one month at least before the date of the annual Commencement at which he expects to receive his degree.

The conditions upon which the Degrees of Electrical Engineer and Mechanical Engineer are conferred upon Bachelors of Science of this University, who have taken these degrees for work done in Electrical Engineering and Mechanical Engineering, are analogous in character and in amount to those given for the degree of Civil Engineer.

In the Agricultural Department the degree is Bachelor of Science *in Agriculture*.

THE DEGREE OF MASTER OF ARTS

1. The degree of Master of Arts may be conferred upon resident graduates of one year's standing of this or any other reputable college, and upon non-resident graduates of two year's standing of this University, who shall pursue a course of liberal study (not professional) subject to the approval of the Faculty.

2. Candidates for the A. M. degree shall be required to present a thesis upon some branch of liberal study pursued since graduation, and to pass an examination before the Faculty.

3. The thesis must be presented at least two months before Commencement, and be approved before the candidate shall be admitted to examination.

4. The thesis must be written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of authors consulted. A copy of the same shall be deposited in the University Library.

5. The examination shall be both written and oral, and copies of examination papers shall be kept on file at the University Library. The examination shall be conducted by a committee of the Faculty, who shall appoint the time and place of examination, decide upon the merits of the candidate, and, if they deem him worthy, recommend him to the Trustees for graduation.

Students who are not candidates for a degree may be awarded Certificates of Proficiency in recognition of the work which they have done.

EXPENSES.

The Tuition Fee is \$60 per annum, one-half, \$30, payable at the close of each half year.

An annual Fee of \$20 for incidental expenses is charged against all students, one-half payable at the close of each half-year.

This fee is a commutation sum for charges formerly made under several headings, and *does not include charges for breakages, dam-*

ages, etc., which are assessed upon the perpetrators, or, when they are unknown, upon the whole body of students.

Every student upon entering the University is required to pay a Registration Fee of \$10. The payment of this completes the requirements for admission, and is in lieu of the first half-yearly installment of the annual fee.

All students pursuing Laboratory courses are required to pay for material and breakage. This fee varies, but has averaged in the department of Chemistry \$15 besides breakage, in that of Mineralogy \$5, and in that of Mechanics \$5, for the half-year. Students who elect the Chemical Laboratory Course pay half this fee. Each must pay for his own breakage.

Each student pays an annual fee of \$2 for supplying the Reading Room with periodicals.

An ordinary Scholarship cancels the amount of the tuition fee, and a State Scholarship both the tuition and the annual fees. But no student shall have his scholarship credited upon his bills while his college work is in arrears or while any charges stand against him on the Treasurer's books.

A fee of \$8 is charged for the Diploma given at graduation, and a fee of \$5 for a Certificate of Proficiency.

PAYMENT OF BILLS

Interest at the rate of six per cent. will be charged upon all bills from the day on which they are due. No student will be advanced from class to class, or admitted to graduation, until all arrearages are settled to the satisfaction of the Treasurer.

Students temporarily absent from the University are charged as if present. Students entering an advanced class are required to pay one-half of the back tuition, unless from another college.

ROOMS AND ROOM RENT

Room rent in the old College Dormitories ranges from \$15 to \$37.50 per year, according to the location of the room and the number of the occupants. This does not include fuel and lights.

The students' rooms are furnished at the expense of the University. Students need to provide only carpets, mattresses, bed clothing and chamber ware. The beds are furnished with wire mattresses. All rents include care of room by college servants.

THE CONVERSE HALL

The Converse Hall, completed in the year 1895, is an elegant and substantial four-story edifice in the collegiate-gothic style, built of Rutland marble, furnishing handsome suites (single and double) for about ninety students. It is heated by steam, finished throughout in hard wood and supplied with all necessary furniture in oak. There is a fireplace in each study and all the rooms can be lighted by electricity. Each of the three sections is supplied with bathing facilities, and one of them contains a Common Room for general uses. Besides the furniture supplied in the old dormitories, the bedrooms here are furnished with hair mattresses, bolster, pillow and blankets. Rents for single suites range from \$15.00 to \$80.00; for double suites, from \$35.00 to \$70.00 for each occupant. All rooms are cared for by college servants.

The fine old mansion on Main street, lately occupied by Mr. Lawrence Barnes, and formerly by Gov. Van Ness, has been purchased and fitted up for the use of the young women students. It is surrounded by ample grounds and commands a delightful prospect. The household is under the supervision of a matron and a housekeeper.

Good board with room may be obtained in private families at \$3.50 to \$5.00 a week. Other expenses, for clothing, traveling, books, stationery, society and class taxes, etc., vary with the circumstances and habits of the student.

The Central Vermont railroad carries students for fare at mileage rates.

THE WILLIAMS SCIENCE HALL

just completed, is a fire-proof structure of granite, brick, steel and artificial stone, with rich terra cotta decoration. It is of three

stories, with a well lighted attic available for laboratory work, and a basement also adapted to the uses of the Scientific departments. It is supplied with the latest and best devices for heating and ventilation and for practical laboratory work, and is occupied by the Chemical, Physical, Electrical and Biological sections of the University.

BOARDING HALL

There is a Commons Hall on the College grounds at which good table board is furnished to students at cost. The rate of board at present is \$2.75 per week, or \$2.50 if paid in advance.

SCHOLARSHIPS

Scholarships, affording aid to students of limited means, to the amount of tuition, have been endowed as follows:

The Washburn Scholarships, twelve in number, by Daniel Washburn, M. D., of Stowe, for the benefit of young men studying for the Christian ministry, or, in default of such applicants, of other deserving young men.

The Louisa H. Howard Scholarships, seven in number, by Miss Louisa H. Howard, of Burlington.

The Sarah B. Jacobs Scholarships, seven in number, by Mrs. Sarah B. Jacobs, of Boston, for the benefit of graduates of Brigham Academy, at Bakersfield, Vt.

The Bertman Scholarship, by John Bertman, Esq., of Salem, Mass.

The Green Scholarship, by Horace Green, LL. D., of New York City.

The Fairbanks Scholarship, by the Hon. Erastus Fairbanks of St. Johnsbury.

The Parker Scholarship, by the Rev. Charles C. Parker, D. D., '41, in memory of himself and son, Charles Edmund Parker, '67.

The Westford Scholarship, by the Hon. L. P. Poland, LL. D., of St. Johnsbury.

The Converse Scholarship, by John H. Converse, '61, of Philadelphia.

The Edwin Wright Marsh Scholarship, endowed by Charles P. Marsh, Esq., '89, of Woodstock, in memory of his son, of the class of 1872, for the benefit, in the first instance, of students from the town of Weathersfield, Vt.

The Charles Munson Marsh Scholarship, by the same, available first for students from Woodstock, if such apply.

The Charles P. Marsh Scholarships, five in number, available first for needy and worthy young men or women from the County of Windsor.

The Lizzie S. Converse Scholarship, by bequest of Miss Lizzie S. Converse of Burlington, for poor and deserving students in the Classical department.

The Rich Scholarship, by Charles W. Rich, Esq., '86, of St. Albans.

The Rich Scholarship, by the same, for the benefit, first, of students from the town of Swanton, Vt.

The Isle LaMotte Scholarship, by N. S. Hill, Esq., of Burlington, for the benefit of students from Isle La Motte, and failing such, from Craftsbury.

The Shaw Scholarship, by the Hon. William G. Shaw, of Burlington, of the class of '49.

The Class of '61 Scholarship, endowed and made available in 1891.

Appointments are made to these scholarships by the Faculty from term to term, and are conditioned on the attainment of a certain grade of scholarship and on exemplary conduct.

The endowment of additional scholarships would enable the University to extend its benefits to those who could not otherwise afford the expense of a four years' maintenance in College. The minimum endowment is one thousand dollars. The annual payment of \$60 relieves one student from the payment of tuition alone; of \$80, from the payment of tuition and annual fees.

STATE SCHOLARSHIPS

Thirty State Scholarships, covering tuition and incidental expenses in the Classical or Scientific departments, are now available. Nomination to these scholarships rests with the senators from the several counties, to whom application should be made.

THE JEDEVINE FUND

now available in part, is loaned in small sums to "poor and deserving students" in the Classical and Scientific departments, who are residents of Vermont. The loans must be well secured, and must be repaid within a specified time after the student leaves college. Applications may be made to the Treasurer of the University.

PRIZES**PRIZE FOR PROGRESS**

A prize of \$25 will be awarded to the student who, in the judgment of the Faculty, is entitled to the greatest credit for effort and attainments in his studies upon completion of the Junior year.

PRIZES FOR ELOCUTION

By gift from Dr. William E. Forest, 1874, New York City, prizes of \$25, \$15 and \$10 are offered to members of the Sophomore and Freshman classes for the best declamation of passages in oratorical prose.

THE READING PRIZE FOR YOUNG WOMEN

Prizes of \$25, \$15 and \$10 are offered for excellence in reading by young women of the University.

THE PHELPS PRIZE

A prize of \$50 in gold, endowed in memory of the late Edward Haight Phelps, C. E., class of 1872, will be awarded by the Faculty

each year at Commencement to a graduate of that year in Civil Engineering who shall have exhibited conspicuous merit in professional studies, and high and noble traits of personal character. A special certificate will accompany the prize, indicating the conditions upon which it has been awarded. In case no award shall be made in any year, the same amount of money will be expended in the purchase of books on the subject of Civil Engineering for the use of the department.

HOWARD PRIZES

Mrs. Hannah T. Howard, of Burlington, left by will \$1,200, the income of which is to be awarded in prizes.

From the income of the above fund, three prizes of \$25 each will be awarded in 1897 to candidates for admission to the Freshman Class who shall pass the best entrance examinations in Greek, in Latin, and in Mathematics.

THE LIBRARY

The Library of the University, selected with special reference to the several departments of study, contains 88,425 volumes, besides the 12,507 volumes that form the library of the late Hon. George P. Marsh, a collection of the highest value in the departments of Philology, European Literature and History, and Physical Geography. This collection is the gift of the late Hon. Frederick Billings of Woodstock, and is deposited in a room especially provided and elegantly appointed to receive it. The whole library has been carefully arranged by subjects, on the Dewey system, with accession and shelf catalogues. A card catalogue on the dictionary plan is in progress, being already complete for the subjects, Literature, Philology, History, Industrial Arts, Ethics, Philosophy, Religion and portions of Natural Science. A full catalogue of the Marsh collection, by authors and subjects, has been published.


The beautiful and commodious Billings Library, erected at a cost exceeding \$150,000, with a shelving capacity of 100,000 volumes, contains the general library of the University and the special collections. The apse, originally designed for the Marsh collection, has been appropriated to the use of the reference library and reading room.

The gift of \$10,000 which Mr. Billings made for the increase of the library has now been mostly expended, and several thousand volumes have been added.

The income from the bequest of Miss Maria Loomis, of Burlington, of the sum of \$10,000, has become available for the purchase of books. The income from the various funds available for the increase of the Library amounts to something over \$1,000 a year.

The Library is open during term time eight hours daily on week days for consultation and drawing books, and for reading and reference two hours on Sunday afternoons, and every week day in vacation. The reading room of the Library is supplied with the leading scientific and literary periodicals. Persons not connected with the University have free use of the Library for consultation, and on special permission from the President or Librarian, are allowed to draw books. Students have also the use of the Fletcher Free Library, a collection of over 24,000 volumes, for loan and reference, which is open daily.

The Library Committee solicits gifts of books and pamphlets relating to Vermont History and the lives of natives of Vermont; also of copies of all books written by Vermonters, or published in the State, and of files of State papers, especially of the first half of this century, and earlier.

 *Of the Annual Catalogues of the University supposed to have been issued from 1810 to 1833, inclusive, the Library possesses only those of 1822, 1823 and March, 1825. The alumni and other friends, are earnestly requested to help in completing our file.*

THE MUSEUM.

The various collections exhibited in the Museum building, though primarily gathered and arranged with reference to study and for illustrating lectures, are of general interest. The rooms are accessible to the public on week days from 9 A. M. until 5 P. M. For the general guidance of visitors the following outline of the arrangement of the specimens is given.

On the first floor is the Mineralogical collection, which contains several thousand specimens representing nearly all the species mentioned in the Manuals. Some of the specimens are unusually fine, notably a splendid series of Sicilian sulphurs, celestites and associated minerals collected by the Hon. Geo. P. Marsh, and a number of Hartz Mountains and other European minerals collected by the Rev. Edward Hungerford. There is also an extensive series of the rocks of Europe and a very complete set of the lavas of Vesuvius, the gift of Mr. Hungerford. A nearly complete set of the rocks and marbles of Vermont and several hundred specimens of foreign marbles are also placed in this room, though only a part can be shown for lack of space. Besides foreign birds and mammals, there is nearly a complete representation of the mammals, birds and fishes native in this State, and an alcoholic collection of the reptiles and fishes of the United States. There is a smaller collection of mounted skeletons of vertebrates and numerous crania and other bones, including a perfect lower jaw of the sperm whale. The nests and eggs of many of the birds common in Vermont have been obtained and most of them are arranged in cases. On this floor is a fine bas relief, dating from about 875 B. C., taken from one of the palaces at Nimroud, the gift of Mr. John H. Converse.

On the second floor of the Museum building there is a large collection of shells made up of selections from the original Museum collections and from those of the Hon. L. E. Chittenden and Prof. G. W. Benedict, which were given to the Museum a few years ago. To these the fine collection of Dr. William C. Hickok has recently been

added. Smaller but good collections of corals, echinoderms and sponges occupy cases near the shells. Of these the living forms are in many cases shown by the beautiful Blaschka glass models. The wall cases on this floor contain the collection of fossils. This is primarily intended to illustrate the geology of Vermont and all the horizons found in the State are well represented, but all the epochs recognized in the Manuals are more or less fully represented by specimens from various American and European localities. Several important additions to this part of the Museum have been made during the past few years. Besides several hundred specimens of coal plants from the Carboniferous of Pennsylvania and Illinois, a considerable series of plant fossils have been obtained from the Cretaceous and Tertiary of the West. There has also been recently added a small, but valuable collection of skulls and other parts of the skeletons of Vertebrates from the western Tertiary, including some very fine specimens of fishes from the Wyoming Green River shales.

The Archæological collections include the largest and by far the most important series of objects illustrating the prehistoric times of Vermont that has been brought together. There are several thousand specimens of the work of the former occupants of the Champlain Valley in stone, bone, copper, shell and earthenware, some of them very rude, others as finely formed and perfectly finished as the best from other parts of the United States. Smaller, but not unimportant, collections from the Ohio and Mississippi Valleys and from the Pacific coast are also displayed.

The pottery of the mound-builders and of ancient and modern Pueblo tribes is represented by numerous examples and a very interesting collection consisting of several hundred jars, dishes and vases, stone and bone implements, basket work, bits of cloth, skulls, etc., etc., from cliff houses in Mancos Canon, Colorado, has just been placed in cases. There are a few specimens of stone and pottery from Mexico and a much greater number from pre-Columbian graves in Nicaragua.

The Ethnological collection is constantly becoming of greater interest and value. It is placed in a room by itself recently added to the main building. There are small, but, in some cases at least, very choice, collections of the weapons, implements and ornaments of the natives of Australia, Polynesia, Africa and Oriental countries. The very fine Reed collection of objects collected among the Sioux Indians is of especial interest, and similar specimens from the southern tribes are also exhibited.

The interest and value of the Ethnological collection will ere long be greatly increased by the addition of the many superb specimens of East Indian and Oriental workmanship, arms, carvings, fabrics, ornament, etc., bequeathed to the Museum by the late Mr. H. LeGrand Cannon, with a sum of money sufficient to provide a suitable room for their reception. This is the most valuable gift the Museum has ever received.

In addition to the collections already mentioned there is a large herbarium containing a complete series of Vermont plants as well as thousands of specimens from other parts of the United States and foreign lands. This is placed in a room specially prepared for it in the Williams Science Hall. There are also collections of native and foreign woods, of fruits and seeds, with several thousand specimens of insects, chiefly from New England and the northern United States, and a good collection of Greek, Roman and modern coins. These latter collections are most of them located in the Museum building, but may be examined upon application to the Curator.

Should visitors find the Museum building closed, a key may be obtained at the Library.

THE PARK GALLERY OF ART

TRUSTEES

PRES. M. H. BUCKHAM, *President ex-officio*PROF. H. A. P. TORREY, *Secretary*HON. F. C. KENNEDY, *Treasurer*

HON. G. G. BENEDICT

COL. LEGRAND B. CANNON

HON. E. J. PHELPS

It is the aim of the Trustees of the Art Gallery to gather into a small but good collection, such works of art, paintings, engravings, models, casts, photographs, etc., as will serve to illustrate the history and the principles of both ancient and modern art. The nucleus of such a collection has already been secured. Contributions are solicited in any of the following classes, or funds for the purchase of the same :

1. Paintings—not copies—by either American or foreign painters. 2. Works of Sculpture : statutes, busts, reliefs, medallions, whether original or copies made under the eye of the sculptor. 3. Original drawings. 4. Casts from noted sculptures. These are especially valuable in art studies and are comparatively inexpensive. 5. Bronzes, terra cottas, enamels, faiences, ancient vases, works in metal and glass, tapestries, etc., in which the artistic merit is conspicuous. 6. Valuable engravings, wood-cuts and etchings. 7. Photographs from originals of the great masters in painting, and from the best works in sculpture and architecture. 8. Works on art, biographies, dictionaries, criticism, etc. The names of donors will be inscribed on works of art presented to the gallery.

ASSOCIATE ALUMNI

President, Robert D. Benedict, LL. D., Brooklyn, N. Y.*Vice-President*, Robert H. Fleming, Chicago, Ill.*Secretary*, Charles E. Allen, Burlington, Vt.*Treasurer*, Don A. Stone, Burlington, Vt.

Obituary Committee, Hon. G. G. Benedict, Prof. J. E. Goodrich,
Principal S. W. Landon, J. Isham Bliss, D. D.
Executive Committee, Hon. E. B. Taft, Rev. S. L. Bates, Hon.
Elias Lyman, H. C. Farrar, D. D., Hon. Henry W. Hill.

Local Alumni Associations for cherishing the college spirit, and for promoting the interests of the University in their several localities, have been formed as follows :

THE NEW YORK ASSOCIATION, for New York City and vicinity :
President, Hon. Darwin P. Kingsley; *Vice-Presidents*, Edward S. Peck, M. D., and Charles H. Hoyt; *Secretary and Treasurer*, Edward G. Spaulding [187 West 48d St., N. Y. City]; *Executive Committee*, Prof. James R. Wheeler, George L. Wheelock, Fred M. Corse, Clarence S. Grow and Arthur C. Crombie.

THE NEW ENGLAND ASSOCIATION, meeting in Boston. *President*, Hon. Edmund H. Bennett, LL. D., Boston, Mass.; *Vice-Presidents*, Charles A. Catlin, Prof. F. E. Woodruff, Hon. G. G. Benedict, F. W. Page, M. D., Hon. H. H. Powers, M. C.; *Secretary and Treasurer*, George W. Stone, [P. O. box 2299, 71 Kilby St. Boston;] *Chaplain*, E. H. Byington, D. D.; *Executive Committee*, Wyllys Benedict, C. P. Thayer, M. D., J. A. Dow, M. D., Fred A. Richardson.

DEPARTMENT OF MEDICINE

FACULTY

MATTHEW HENRY BUCKHAM, D. D.,

President.

JOHN ORDRONAU, M. D., LL. D.,

Emeritus Professor of Medical Jurisprudence.

J. WILLISTON WRIGHT, A. M., M. D.,

Emeritus Professor of the Principles and Practice of Surgery.

ALBERT FREEMAN AFRICANUS KING, A. M., M. D.,

Professor of Obstetrics and Diseases of Women.

ASHBEL PARMELEE GRINNELL, A. M., M. D.,

Dean of the Faculty; Professor of the Theory and Practice of Medicine;
Consulting Physician to the Mary Fletcher Hospital and to the Fanny Allen
Hospital.

RUDOLPH AUGUST WITTHAUS, A. M., M. D.,

Professor of Chemistry and Toxicology.

J. HENRY JACKSON, A. M., M. D.,

Professor of Physiology and Microscopic Anatomy.

ABEL MIX PHELPS, M. D.,

Professor of Surgery; Consulting Surgeon to Mary Fletcher Hospital; Sur-
geon to Charity Hospital, N. Y. City.

HENRY CRAIN TINKHAM, M. D.,

Professor of General and Special Anatomy; Attending Surgeon to the Mary
Fletcher Hospital and to the Fanny Allen Hospital.

JAMES NATHANIEL JENNE, M. D.,

Professor of Materia Medica and Therapeutics.

JOHN BROOKS WHEELER, A. B., M. D.,

Adjunct Professor of Surgery; Professor of Clinical and Minor Surgery; At-
tending Surgeon to the Mary Fletcher Hospital; Consulting Surgeon to
the Fanny Allen Hospital.

C. SMITH BOYNTON, A. M., M. D.,

Adjunct Professor of Chemistry.

PATRICK EUGENE MCSWEENEY, M. D.,

Adjunct Professor of Obstetrics; Attending Physician to the Mary Fletcher Hospital and the Fanny Allen Hospital.

FREDERICK RUBERT STODDARD, M. D.,

Adjunct Professor of Materia Medica.

HARRIS RALPH WATKINS, A.B., M. D.,

Demonstrator of Anatomy; Attending Physician to the Mary Fletcher Hospital, and Attending Surgeon to the Fanny Allen Hospital.

PROFESSORS OF SPECIAL SUBJECTS

JULIUS HAYDEN WOODWARD, B. S., M. D.,

Professor of Diseases of the Eye, Ear and Throat; Ophthalmologist to the Mary Fletcher Hospital and the Fanny Allen Hospital.

GREAME M. HAMMOND, M. D.,

Professor of Diseases of the Nervous System.

WILLIAM WOTKINS SEYMOUR, A. B., M. D.,

Professor of Surgical Diseases of Women.

JOSEPH HATCH LINSLEY, M. D.,

Adjunct Professor of Physiology, and Professor of Pathology and Bacteriology; Pathologist to the Fanny Allen Hospital.

JAMES RAYNOR HAYDEN, M. D.,

Professor of Genito-Urinary and Venereal Diseases; Visiting Surgeon to City Hospital, Blackwell's Island.

PETER MANLIUS WISE, M. D.,

Professor of Diseases of the Mind; Supt. of St. Lawrence Insane Asylum.

JUDSON EARL CUSHMAN,

Professor of Medical Jurisprudence.

DILLON BROWN, A. M., M. D.,

Professor of Diseases of Children.

GEORGE T. JACKSON, A. M., M. D.,

Professor of Dermatology.

ANNUAL ANNOUNCEMENT, 1897

The Medical Department of the University of Vermont was chartered by the State in 1823. It was organized in 1854. The institution is consequently one of the oldest Medical Colleges in the United States.

The forty-fourth annual course of lectures began Thursday, January 4th, 1897, and will continue six months. This extension of the term will increase the scope of instruction and afford the student more time to digest the information imparted to him. The corps of instructors has been increased by the election of Adjunct Professors to several chairs. These Adjuncts will instruct the class by lectures or recitations under the direction of the chief of the department, and such instruction will be a compulsory part of the curriculum. The executive faculty remains unchanged.

There will be only one course of lectures each year in this department.

The curriculum comprises instruction in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice, Obstetrics, Surgery, Diseases of Children, Ophthalmology and Otology, Pathology and Bacteriology, Neurology, Diseases of the Mind, Hygiene, Medical Jurisprudence, Venereal Diseases, Dermatology, Laryngology, Gynæcology and Examinations for Life Insurance. This instruction is given by scholastic and clinical lectures and by demonstrations. Laboratory instruction in Urinary Analysis, Histology, Pathology and Bacteriology, and practical work in Physical Diagnosis, Surgery and Demonstrative Obstetrics are now compulsory; and each candidate for the degree of Doctor of Medicine must have taken each of these branches *once* during his attendance at this college, unless he has evidence of having taken the same at some other college.

All private courses by the professors are abolished.

REQUIREMENTS FOR ENTRANCE

All students who have matriculated in this Department of the University *prior to July 8, 1891*, will be admitted to the lectures and enrolled as students in regular standing, *without preliminary examination*.

Applicants who do not belong to this class will be required to pass an Entrance Examination in *Arithmetic, Grammar, Geography, Orthography, American History, English Composition and Elementary Physics*, before they may be regularly enrolled as students in good standing in this department. But applicants who may have failed in one or more branches at these examinations may be enrolled as *conditioned* students; they must make up the deficiency, however, during the first year, before they can be enrolled as students in regular standing.

EXCEPTIONS :—Such entrance examination *will not be required* of applicants of any of the following classes :

1. Those who declare themselves *in writing* not to be candidates for the Degree in Medicine from this College.

2. Those who have received the Degree of A. B., A. M., B. S., M. S., Ph. B., or Ph. D., from a College or University which maintains a satisfactory academic standard.

3. Those who have successfully completed a full year's course of study in any College or University which maintains a satisfactory academic standard.

4. Those who have passed satisfactorily the entrance examination to the Academic Department of the University of Vermont, or to any other College or University which maintains a satisfactory academic standard.

5. Those who have passed the entrance examination to a Medical School having requirements for entrance equivalent to those adopted by this Faculty.

6. Those who have received a Medical Student's Certificate from the Regents of the State of New York, or from any similarly constituted authority in other States.

7. Those who have received a Diploma or a Certificate for any ten studies from the Regents of the State of New York, or from any similarly constituted authority in other States.

8. Those who have satisfactorily completed a three years' course in a High School, Normal School or Academy.

Examinations for entrance will be held January 25 to 29, March 22 to 26, and June 14 to 18, 1897. Detailed information in regard to examinations will be found in the special Announcement of this Department.

CLINICAL INSTRUCTION

During the lecture term College Clinics will be held as follows : A Medical Clinic at the Hospital every Wednesday morning, January 20 to May 12 ; a Clinic for the Diseases of the Eye, Ear and Throat, March 22 to April 2 ; a Surgical Clinic every Saturday morning, January 30 to May 1 ; a Clinic for Diseases of the Skin, May 4 to May 8 ; a Clinic for Venereal Diseases, May 10 and 14 ; a Clinic for Diseases of Women, May 8 and 15 ; a Surgical Clinic every Saturday morning and every Wednesday afternoon, May 19 to June 26 ; a Clinic for Diseases of the Nervous System, April 26 to April 30. For further information see special Announcement.

REQUIREMENTS FOR GRADUATION

Students who have matriculated in this College prior to July 1, 1890, will be subject to the regulations and requirements for graduation as printed in the Announcement for 1890.

THREE FULL COURSES OF LECTURES, OF AT LEAST TWENTY WEEKS EACH, WILL BE ABSOLUTELY REQUIRED OF STUDENTS WHO DO NOT COME UNDER THE ABOVE REGULATION, AND NO PERIOD OF PRACTICE WILL BE TAKEN AS AN EQUIVALENT OF ONE COURSE. *

No candidate shall be admitted to an examination until all fees due the College from such candidate shall have been paid.

Candidates for the Degree of Doctor of Medicine, before presenting themselves for examination, must have attended at least three full courses of lectures of twenty weeks duration each, the last at this College. The candidate must have studied medicine three years, must have attained the age of twenty-one years, and must present full certificates of the time of his study, of age, and of moral character. Each candidate is required to deposit his examination fee with the Secretary of the Faculty one month before the close of the session, and to furnish evidence of having pursued the study of Practical Anatomy under the direction of a demonstrator.

He must have taken at least one course of Laboratory instruction in Urinary Analysis, in Histology, and in Pathology and Bacteriology, and one course of practical work in Physical Diagnosis, in Practical Surgery, and in Demonstrative Obstetrics in some regular Medical College before he may become a candidate for graduation.

He must also pass a satisfactory written or oral examination before the Medical Faculty and Board of Medical Examiners appointed by the State Medical Society. No thesis is required.

The tickets and diplomas of Eclectic and Homœopathic, or Botanic Colleges, or Colleges devoted to any special system of medicine, are considered irregular, and will not be recognized under any circumstances. Certificates from preceptors who practice any particular system of medicine, or who advertise, or violate in any way the Code of Ethics adopted by the profession, will not be accepted under any circumstances, even if the preceptors are regular graduates in medicine.

Graduates of other regular Medical Colleges who desire a degree from this University must pass a satisfactory examination in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice of Medicine, Surgery and Obstetrics. No thesis is required.

No credit in time or in lectures shall be given any student by virtue of his degree in Pharmacy, Dentistry, or Veterinary Surgery.

Degrees *in absentia* are not conferred by this University under any circumstances whatever.

EXAMINATIONS IN ELEMENTARY BRANCHES

Students who have attended two full courses of lectures in *all departments taught in this College* may be examined upon Anatomy, Physiology, Chemistry and Materia Medica at the end of the second course, and if successful in these examinations they will be examined at the end of the third course upon Practice of Medicine, Surgery and Obstetrics only. Candidates for the primary examinations will be required to pay three-fifths of the examination fee. The primary examinations are held at the close of the regular session only. The certificate and the remainder of the examination fee are to be handed to the Secretary at the regular time before the examination. Certificates of having passed in any branch or branches in other colleges are not accepted by this College.

FACULTY PRIZES

The Faculty have established two Prizes for general proficiency in examination—a First Prize of Fifty Dollars and a Second Prize of Twenty-five Dollars. These prizes will be awarded as follows :

The ten students who pass the best examinations for their degree will be allowed to compete in a written examination for the prizes; of this number, the five who rank highest shall be called Honor Men, and will each receive a special *Diploma of Honor*, and of these last, those who are deemed worthy shall receive respectively the first and second prizes.

The Honor Men of 1896 were: Lyman Allen, A. B., Harry Walter Mitchell, Morton Lyman Griswold, A. B., Charles Frederick Morse, Velona Alonzo Marshall. The First Prize was awarded to Lyman Allen, A. B.; the Second Prize to Harry W. Mitchell.

FULL FEES OF THE COLLEGE

MATRICULATION FEE, payable each term.....	\$ 5 00
FULL COURSE OF LECTURES, each year.....	100 00
SINGLE TICKETS.....	20 00
EXAMINATION FEE, payable once, and not returnable.....	25 00

There are no other fees or charges of any kind.

In the Session of 1897, but not thereafter, any student who has taken a special course in this College in Urinalysis or Pathology will be credited with the amount of the fees paid therefor upon his *second year* fees; and any student who has taken a special course in this College in Physical Diagnosis, Demonstrative Obstetrics or Practical Surgery will be similarly credited upon his *third year* fees.

Graduates of other regular American Medical Schools are admitted on payment of the matriculation fee and \$25.

Graduates of this school are admitted without fee.

Theological students are admitted on payment of the matriculation fee only, unless intending to graduate in medicine, in which case they will be required to conform to the above conditions.

All fees must be paid to the Secretary, and are payable in advance.

BOARD may be obtained for from \$3.50 to \$5.00 per week. Good accommodations furnished students who wish to board themselves. Many adopt this method at a great reduction in expense. Students who intend to board themselves will find such bedding and culinary articles as they may require furnished with the rooms.

After registering, every student is furnished with a certificate entitling him to fare at mileage rates on railroad and steamboat lines running into Burlington.

For further particulars address the Secretary,

B. J. ANDREWS, M. D.,

Mary Fletcher Hospital,

BURLINGTON, VT.

Or A. P. GRINNELL, M. D., DEAN.

STUDENTS

Graduate Students

NAME	RESIDENCE	ROOM
Florence Lucy Burdick, A.M. 1896 Analytical Mechanics.	Winooski	72 Main St., Winooski
Geo. Hiram Dalrymple, Ph.B. 1895 Economics and Mathematics.	Vergennes	349 College St.
Martin Samuel Vilas, A. B. 1894 English and Greek.	Winooski	Winooski

SENIOR CLASS

Lemuel Payson Adams	Cl	Swanton	85 S. Converse Hall
Edwin Browne Allen	LS	Brimfield, Mass.	849 College St.
Blanche Brigham	Cl	Hyde Park	411 Main St.
George Moxham Burdick	Cl	Crown Point, N. Y.	72 Grant St.
John Stephen Buttles	LS	Brandon	85 N. Converse Hall
Charles Frederick Clark	Ag	Glover	12 Exp. Station
Henry Wallace Clark	Cl	Castleton	5 S. College
Charles Austin Coburn	LS	Enosburgh	86 N. Converse Hall
Ora Alonzo Colby	ME	Woodstock	18 S. College
Frank Porter Davis	CE	Essex	85 S. Willard St.
James Lyford Davis	CE	Fairlee	81 M. Converse Hall
Leonard Smith Doten	CE	Burlington	51 Loomis St.
Gay Worthington Felton	Cl	Burlington	80 Colchester Ave.
Tracy Elliot Hazen	Cl	Richmond	6 S. College
Edward Elisha Herrick	Ag	Milton	18 Exp. Station
George Maynard Hogan	Cl	St. Albans	85 S. Converse Hall
Douglas Winfield Holton	CE	Burlington	7 Johnson St.
Arthur Otis Howe	EE	Newfane	11 N. College
Fred Kinney Jackson	Cl	Barre	849 College St.

JUNIOR CLASS

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NAME		RESIDENCE	ROOM
Walter Pope Kern	Ch	<i>Burlington</i>	72 S. Winooski Ave.
Arline Estelle Ladd	LS	<i>Thetford</i>	411 Main St.
Adelle Irene Lee	Cl	<i>Burlington</i>	488 S. Union St.
Albert Ernest Lewis	LS	<i>Randolph</i>	16 N. College
Frederic Fuller Lincoln	LS	<i>Malone, N. Y.</i>	849 College St.
William Wallace Murray	Ch	<i>Winooski</i>	Canal St., Winooski
Grace Alice Noyes	LS	<i>Hyde Park</i>	411 Main St.
William Allen Orton	Ag	<i>Fairfax</i>	16 Exp. Station
Katharine Jane Page	LS	<i>Hinesburgh</i>	80 College St.
Madison Alden Parker	Ag	<i>Concord</i>	12 Exp. Station
Theodora May Plumley	Cl	<i>Northfield</i>	411 Main St.
William James Sayward	ME	<i>Woodstock</i>	1 M. Converse Hall
Annie Laurie Sherburne	Cl	<i>N. Pomfret</i>	411 Main St.
George Edson Philip Smith	CE	<i>W. Burke</i>	11 S. College
Bessie Lou Stearns	LS	<i>Burlington</i>	85 Loomis St.
Almon Beede Stetson	EE	<i>Wadham's Mills, N. Y.</i>	48 M. Conv.
Bingham Hiram Stone	Cl	<i>Jericho</i>	2 N. College
Arthur Roy Webster	Cl	<i>Coventry</i>	55 Elmwood Ave.
Donald Clark Wedgeworth	Cl	<i>W. Berkshire</i>	18 S. College
Charles Flagg Whitney	Ch	<i>Williston</i>	11 S. College
Geo. W. Tapley Whitney	LS	<i>Bethel</i>	7 N. College
Frederick Buell Willard	Cl	<i>Burlington</i>	102 Summit St.
Charles Augustus Wronn	Ch	<i>Burlington</i>	14 Buell St.

JUNIOR CLASS

William Silas Bean	LS	<i>Newport</i>	26 S. Converse Hall
Ernest Hyde Bell	CE	<i>St. Albans</i>	4 S. College
Floy Edson Booth	ME	<i>Swanton</i>	55 Loomis St.
William LeRoy Bryant	EE	<i>Ludlow</i>	1 M. Converse Hall
William Henry Burt	Cl	<i>Taunton, Mass.</i>	8 S. College
Charles Ernest Canfield	EE	<i>Arlington</i>	20 S. College
Anna May Clark	LS	<i>Brookfield</i>	488 Main St.
Vinton Albert Clark	Ag	<i>Burlington</i>	Exp. Farm

NAME		RESIDENCE	ROOM
James Ora Coddling	Cl	<i>Westminster West</i>	4 N. College
Carrie Esther Deavitt	Cl	<i>Montpelier</i>	64 Buell St.
Louis Collins Dodd	Ch	<i>Buffalo, N. Y.</i>	349 College St.
Lewis Walbridge English	Ag	<i>Woodstock</i>	11 Exp. Station
William James Forbes	LS	<i>Fairhaven</i>	349 College St.
Samuel Warren Hamilton	Cl	<i>Rutland</i>	42 S. Converse Hall
Helen Grace Hendee	LS	<i>Brandon</i>	150 Bank St.
Carlton Dexter Howe	Cl	<i>Newfane</i>	6 N. College
Clifton Durant Howe	Cl	<i>Newfane</i>	6 N. College
George Campbell Hubbard	Ag	<i>Springfield</i>	16 Exp. Station
Samuel Hollister Jackson	Cl	<i>Barre</i>	73 Church St.
Peer Prescott Johnson	Cl	<i>Burlington</i>	32 S. Converse Hall
Nelson Bertrand Keeler	EE	<i>Hyde Park</i>	349 College St.
Fred Halsey Larabee	Cl	<i>Craftsbury</i>	194 S. Prospect St.
William Barry Leavens	Cl	<i>Passaic, N. J.</i>	31 S. Converse Hall
Abbie Katharine Leonard	Cl	<i>Grafton</i>	411 Main St.
Elwyn Nehemiah Lovewell	LS	<i>Burlington</i>	15 S. College
Albert Fay Lowell	Cl	<i>Burlington</i>	49 Mansfield Ave.
Edward R. Mack	ME	<i>Hardwick</i>	10 N. College
Ida Maud Miles	Cl	<i>Barton</i>	411 Main St.
Mabel Augusta Miles	Cl	<i>Barton</i>	411 Main St.
Margaret Alice Millham	LS	<i>Williston</i>	229 Colchester Ave.
Warner Jackson Morse	Ag	<i>Waterbury Centre</i>	15 Exp. Station
Walter Towne Mott	LS	<i>St. Albans</i>	45 S. Converse Hall
Clarence Elbert Noyes	LS	<i>Castleton</i>	7 S. College
Roy Leonard Patrick	LS	<i>Burlington</i>	41 S. Willard St.
Henry Farnham Perkins	Cl	<i>Burlington</i>	205 S. Prospect St.
William Comstock Perry	Ag	<i>Rowayton, Conn.</i>	1 N. College
Herbert Leon Priest	Ag	<i>Plymouth</i>	18 Exp. Station
Perley Orman Ray	Cl	<i>Burlington</i>	108 N. Winoski Ave.
Charles Stewart Raymond	ME	<i>Ludlow</i>	49 Mansfield Ave.
Merton Covey Robbins	CE	<i>Brattleboro</i>	5 N. College
William Julius Russell	Cl	<i>Burlington</i>	386 S. Union St.

SOPHOMORE CLASS

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NAME		RESIDENCE	ROOM
Marian Brigham Rustedt	LS	<i>Richford</i>	411 Main St.
Ide Gill Sargeant	LS	<i>Granville</i>	5 N. College
Hugh Aaron Seager	CE	<i>Brandon</i>	2 S. College
Duncan Stuart	Ag	<i>Burlington</i>	15 Exp. Station
Russell Wales Taft	Cl	<i>Burlington</i>	291 S. Union St.
John Cutler Torrey	Cl	<i>Burlington</i>	75 S. Prospect St.
Dennie Hammond Udall	Ag	<i>Craftsbury</i>	1 N. College
Charles Strain Van Patten	Cl	<i>Burlington</i>	886 Pearl St.
Arthur Montague Vaughan	Ag	<i>Woodstock</i>	11 Exp. Station
Harris Hard Walker	Cl	<i>Burlington</i>	181 S. Union St.
Frank Waldo Ward	Ch	<i>Kennebunk, Me.</i>	22 Buell St.
Charles Douglas Waters	Ch	<i>Winooski</i>	E. Spring St., Winooski
Mabel Sophia Way	LS	<i>Burlington</i>	82 King St.
William Thomas Whelan	Ch	<i>Montpelier</i>	22 Buell St.
Robert Child Wilson	LS	<i>Bethel</i>	8 M. Converse Hall

SOPHOMORE CLASS

Max Walter Andrews	Cl	<i>W. Berkshire</i>	849 College St.
Alfred Ray Atwood	Cl	<i>Lowell</i>	2 N. College
Warren Robinson Austin	LS	<i>Highgate</i>	88 N. Converse Hall
Charles Alpheus Bigelow	LS	<i>Bristol</i>	5 S. College
Charles Francis Blair	Cl	<i>Morrisville</i>	849 College St.
David Royal Bosworth	Cl	<i>Bristol</i>	Colchester Ave.
Carl Brigham Brownell	Cl	<i>Burlington</i>	196 S. Willard St.
George Howard Burrows	Ch	<i>Burlington</i>	The Richardson
Charles Ira Button	LS	<i>Brandon</i>	29 Mansfield Ave.
Frederic Percy Byington	EE	<i>Charlotte</i>	27 Buell St.
Elmore Robert Calderwood	Ag	<i>Craftsbury</i>	20 Exp. Station
John Alden Chase	CE	<i>Randolph</i>	42 M. Converse Hall
Harley Wheeler Chittenden	Cl	<i>Burlington</i>	160 Pine St.
Genevieve Collins	Cl	<i>Burlington</i>	Interval Road
Clarence Lee Cowles	Cl	<i>Craftsbury</i>	85 Colchester Ave.
Leon Ernest Daniels	Cl	<i>Morrisville</i>	46 N. Converse Hall

NAME		RESIDENCE	ROOM
Samuel Campbell Dunlop	Cl	<i>Poultney</i>	7 S. College
Robert Dudley Emery	EE	<i>Montpelier</i>	849 College St.
Ernest Julius Ewing	Cl	<i>Clarendon</i>	86 S. Converse Hall
Frank Floyd Finney	LS	<i>Hinesburgh</i>	195 St. Paul St.
Ruth Fisher	LS	<i>Vergennes</i>	855 Pearl St.
Alpheus Breed Frizzell	Ag	<i>Canaan</i>	20 Exp. Station
Frank Keeler Goss	Cl	<i>Vergennes</i>	85 M. Converse Hall
Harry Henderson Greene	Ch	<i>Burlington</i>	27 Loomis St.
Mary Isabelle Gregory	LS	<i>Burlington</i>	56 Elmwood Ave.
George Jean Holden	ME	<i>Burlington</i>	805 S. Union St.
Ada Almina Hurlburt	Cl	<i>Burlington</i>	11 Weston St.
Frank Roland Jewett	Cl	<i>Swanton</i>	44 M. Converse Hall
Wait Chatterton Johnson	Cl	<i>Rutland</i>	45 S. Converse Hall
Guy Philbrick Lamson	Ch	<i>Randolph</i>	5 M. Converse Hall
Robert Ashton Lawrence	Cl	<i>Rutland</i>	25 S. Converse Hall
Emily Wheelock Lucia	LS	<i>Montpelier</i>	489 Main St.
Marion McIntyre	Cl	<i>Randolph</i>	411 Main St.
Edwin Ellsworth Miller	ME	<i>Newport</i>	28 S. Converse Hall
Belle Thayer Morse	Cl	<i>Randolph</i>	411 Main St.
Robert Bass Morton	EE	<i>Randolph</i>	42 M. Converse Hall
Mabel Nelson	LS	<i>Burlington</i>	118 Pearl St.
George Douglas Osgood	Cl	<i>Montpelier</i>	41 S. Converse Hall
Mary Crafts Paddock	LS	<i>Craftsbury</i>	411 Main St.
Russell Smith Page	Cl	<i>Hyde Park</i>	38 Buell St.
Charles Haswell Parker	LS	<i>Burlington</i>	325 S. Union St.
Clarence Willard Richmond	Ag	<i>Newport</i>	46 N. Winoski Ave.
Katie Lena Russell	LS	<i>Shelburne</i>	51 N. Union St.
May Winifred Russell	Cl	<i>Burlington</i>	129 Loomis St.
Lucy Etta Sawyer	LS	<i>Hyde Park</i>	146 William St.
Donald Harris Scribner	Cl	<i>Hyde Park</i>	6 S. College
James Thatcher Seaver	ME	<i>Quechee</i>	46 N. Converse Hall
Jacob Kingsley Shaw	Ag	<i>Northfield</i>	19 Exp. Station
Eunice Dewey Smith	Cl	<i>Barre</i>	411 Main St.

FRESHMAN CLASS

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NAME		RESIDENCE	ROOM
Fanny Lydia Smith	LS	<i>Shelburne</i>	51 N. Union St.
Harry Warner Smith	Cl	<i>Swanton</i>	44 M. Converse Hall
Bessie Marian Stewart	LS	<i>Bakersfield</i>	8 S. Willard St.
Alvin Milton Taylor	Ch	<i>Burlington</i>	76 Chase St.
Mary Carr Tewksbury	LS	<i>Randolph</i>	385 S. Willard St.
Forrest Edward Ward	CE	<i>Kennebunk, Me.</i>	25 M. Converse Hall
James Henry Whelden	LS	<i>Ludlow</i>	21 M. Converse Hall
Byron Eugene White	Ag	<i>Hardwick</i>	19 Exp. Station
Alice Ruby Whitney	LS	<i>Bethel</i>	85 Colchester Ave.
Edward Chapman Wright	Ch	<i>Burlington</i>	16 Grant St.

FRESHMAN CLASS

Lee Clark Abbott	LS	<i>Franklin, Mass.</i>	41 M. Converse Hall
James Hawley Aiken	Ch	<i>Benson</i>	85 S. Willard St.
Dell Beeman Allen	LS	<i>Burlington</i>	52 N. Winooski Ave.
Fred Edgar Allen	Ag	<i>Royalton</i>	Exp. Farm
Truman Roberts Andrews	Cl	<i>Burlington</i>	281 Maple St.
Charles Hobart Atwood	E	<i>Burlington</i>	27 Buell St.
Fannie Howe Atwood	LS	<i>Burlington</i>	27 Buell St.
Guy Winfred Bailey	Cl	<i>Essex Junction</i>	Essex Junct.
De Roy Frederic Baker	Ch	<i>Mechanicsville, N. Y.</i>	85 S. Willard
Sidney Harold Barlow	E	<i>Burlington</i>	462 S. Willard St.
Arthur Sanders Bean	Cl	<i>Randolph</i>	69 College St.
Royden Eugene Beebe	E	<i>Burlington</i>	67 N. Union St.
Edward Cyril Bessette	E	<i>Plattsburgh, N. Y.</i>	45 M. Conv. Hall
Arthur Boyce	E	<i>Winchendon, Mass.</i>	12 S. College
John Henry Brackett	E	<i>St. Johnsbury</i>	42 N. Converse Hall
Lyman Brooks	E	<i>Charlestown, N. H.</i>	349 College St.
Mary Tracy Brownell	LS	<i>Essex Junction</i>	Essex Junct.
Amy Maud Burt	LS	<i>Swanton</i>	177 S. Prospect St.
Mary Annie Carley	Cl	<i>Springfield</i>	254 Colchester Ave.
Edith Louise Carpenter	LS	<i>Webster, Mass.</i>	19 Converse Court
Harry Sylvester Clark	LS	<i>Randolph</i>	41 M. Converse Hall

NAME		RESIDENCE	ROOM
John Grixston Currier	LS	<i>Rutland</i>	28 University Place
Julius Edward Dewey	LS	<i>Montpelier</i>	22 S. Converse Hall
John Morrill Downer	E	<i>Stowe</i>	178 Loomis St.
Horatio Nelson Drury, jr.	Cl	<i>S. Burlington</i>	S. Burlington
Arthur Woodbury Edson	Cl	<i>Cavendish</i>	468 College St.
Wilbert James Edwards	E	<i>Winooski</i>	21 Weaver St., Winooski
Delano Eugene Farr	Cl	<i>Bristol</i>	51 N. Union St.
Winfield Matthewson Farr	Cl	<i>Bristol</i>	51 N. Union St.
John Lowe Fort, jr.	LS	<i>Williston</i>	Williston
Adams Brock Fulton	Ch	<i>Bradford</i>	2 N. Converse Hall
Guido Joseph Giudici	E	<i>Proctor</i>	14 S. College
Glenn Carlos Gould	Cl	<i>Morrisville</i>	45 N. Converse Hall
William Dougald Grant	Ag	<i>St. Johnsbury</i>	Exp. Farm
Herbert Russell Grower	E	<i>Rutland</i>	85 S. Willard St.
Mary Wilson Harrison	Cl	<i>Brandon</i>	489 Main St.
Margaret Mary Healey	LS	<i>Wallingford</i>	71 S. Willard St.
Clifton Morse Heaton	LS	<i>Montpelier</i>	22 S. Converse Hall
Albert Joseph Hildreth	Ag	<i>Brattleboro</i>	13 Exp. Station
Herbert Harold Hilton	Cl	<i>Lynn, Mass.</i>	15 S. Union St.
Harry Dickerman Holden	E	<i>Pittsford</i>	88 S. Willard St.
Ivy Hopkins	LS	<i>Franklin</i>	21 S. Union St.
Frederick William Hubbard	Cl	<i>Rutland</i>	46 S. Converse Hall
Rufus Stuart Hunt	E	<i>E. Peacham</i>	5 N. Converse Hall
Hinman Barrett Hurlbut	E	<i>Ogdensburg, N. Y.</i>	24 M. Conv. Hall
James Chesterfield Jones	Cl	<i>Burlington</i>	483 S. Union St.
Robert Douglas Kellogg	Cl	<i>Plattsburgh, N. Y.</i>	84 M. Conv. Hall
Ralph Crane Kline	E	<i>Newton Ctr., Mass.</i>	5 S. Conv. Hall
James McEwen Larabee	E	<i>Craftsbury</i>	14 N. College
Napoleon Arthur Laury	Ch	<i>Burlington</i>	272 North St.
Howard Augustus Lewis	E	<i>Burlington</i>	80 Lafayette Place
Harry Chester Libby	E	<i>Lowell, Mass.</i>	4 S. College
Levi Bates Lincoln	E	<i>Deering, Me.</i>	71 N. Win. Ave.
Arthur Edward Lovett	LS	<i>Chatham Ctr. N. Y.</i>	M. College

NAME		RESIDENCE	ROOM
Henry Blodgett McIntyre	Cl	Randolph	22 M. Converse Hall
James Leslie Mackay	E	Peacham	5 N. Converse Hall
Alice Josephine Morris	Cl	Webster, Mass.	19 Converse Court
Charles Tidd Murray	E	Charlestown, N.H.	849 College St.
Martha Ella Needham	Cl	Leicester Junction	187 St. Paul St.
Selim Newell	Cl	St. Johnsbury	188 Colchester Ave.
Albert Richard Nourse	Ag	Springfield	17 Exp. Station
Harold Alvah Nourse	LS	Barre, Mass.	45 N. Conv. Hall
Carroll Dunham Partridge	Ch	Bennington	183 King St.
Royal Willis Peake	E	Bristol	2 Colchester Ave.
Frederick Russell Pember	Ag	Putney	13 Exp. Station
Dana Joseph Pierce	E	Bellows Falls	85 M. Conv. Hall
James Burnham Porter	Cl	Rutland	22 M. Converse Hall
Jean Wheeler Potwin	Cl	Brandon	187 St. Paul St.
Thomas Reed Powell	Cl	Burlington	70 Williams St.
James Heman Rice	Ch	Westford	115 Cherry St.
Claude Marwell Richmond	E	Springfield	16 S. College
Herbert Carl Roess	Ag	Brattleboro	Exp. Farm
Arthur Elliot Rohrer	E	Burlington	North Ave.
Louis Philip St. Cyr.	E	Woodstock	46 M. Converse Hall
Wilbur Cyrus Sawyer	E	Essex Junction	Essex Junct.
John Leonard Sheldon	E	Highgate	31 N. Converse Hall
Albert Orange Smith	E	Barre	42 N. Converse Hall
Perley Spaulding	Ag	Bethel	Exp. Farm
Oscar Ernest Spear	E	Charlotte	262 Church St.
Harry Brydon Spencer	E	Proctor	88 S. Willard St.
Laura Verona Stanhope	LS	Berkshire	2 Colchester Ave.
Charles Marcellus Sturgess	LS	Sheldon	M. College
Helen Mabel Thompson	Cl	Irasburgh	411 Main St.
Jesse Weston Tobey	Cl	Burlington	123 N. Winooski Ave.
Charles Amasa Tracy	Cl	Burlington	149 N. Union St.
Walter Wallace Tyler	LS	Burlington	262 Pearl St.
James Obadiah Walker	Ch	Burlington	91 N. Union St.

NAME		RESIDENCE	ROOM
Orville Gould Wheeler	Cl	<i>Burlington</i>	855 S. Union St.
Walter Byron Williams	Cl	<i>Brocton, Mass.</i>	41 N. Conv. Hall
Oscar Bradford Wood	Ag	<i>Georgia</i>	17 Exp. Station
Charles Robert Young	E	<i>N. Craftsbury</i>	14 N. College

Special Students

Lawrence Wesley Barton	<i>Ludlow</i>	1 N. College
Wells Eugene Bennett	<i>Lacrosse, Wis.</i>	4 Hickok Place
Franklin James Burnham	<i>Boston, Mass.</i>	24 M. Conv. Hall
Albert Loomis Clark	<i>Georgia</i>	2 S. College
Frank Williston Clark	<i>Williston</i>	1 S. Converse Hall
Martha Davis	<i>Island Pond</i>	35 Colchester Ave.
May Alice Edwards	<i>Winooski</i>	21 Weaver St. Winooski
Eliza Mabelle Farman	<i>W. Lebanon, N. H.</i>	488 Main St.
George Hardy Finch	<i>Burlington</i>	57 Buell St.
Arthur Warren Floyd	<i>Lowell, Mass.</i>	2 S. College
Helen Adelaide Gilbert	<i>Randolph</i>	35 Colchester Ave.
Edward Pierson Hendrick	<i>Springfield, Mass.</i>	21 S. Conv. Hall
Perley Eugene Holmes	<i>Brattleboro</i>	18 N. College
Harry Stinson Howard	<i>Burlington</i>	264 Maple St.
Ray Woodbury Huse	<i>Montpelier</i>	86 S. Converse Hall
Frederick Clark Mason	<i>Plattsburgh, N. Y.</i>	84 M. Conv. Hall
John Oliver Presbrey	<i>Burlington</i>	109 Summit St.
Frank Richardson Sherman	<i>Newport</i>	82 M. Converse Hall
LeRoy Ray Stoddard	<i>Glens Falls, N. Y.</i>	2 Colchester Ave.
Julius Spear Turrill	<i>Burlington</i>	258 S. Willard St.

MEDICAL STUDENTS, 1896

NAME	RESIDENCE
Abbott, Edson Morse.....	Laconia, N. H.
Adams, James Thatcher.....	Sandwich, N. H.
Agon, Leslie John.....	Canton, N. Y.
Allen, Lyman, A. B.....	Burlington, Vt.
Allen, Walter Brainard.....	St. Johnsbury, Vt.
Anderson, George R.....	Rutland, Vt.
Andrews, Clayton Gerald, Ph. B.....	Richmond, Vt.
Avery, John Waite, A. B.....	Burlington, Vt.
Barnes, Harry Lee.....	Adams, Mass.
Barton, Walter E.....	Spencer, Mass.
Bates, Charles Atwood.....	Randolph, Vt.
Bates, Charles Henry.....	Burlington, Vt.
Bates, George Lucian.....	Morrisville, Vt.
Bates, Walter Simpson.....	Barre, Mass.
Baylies, Frederick Wheaton.....	New Bedford, Mass.
Baylor, John Galt.....	Burlington, Vt.
Beach, Charles Arthur.....	Burlington, Vt.
Bean, John Hiram.....	Milton, Vt.
Beauclerk, William Preston.....	Irasburgh, Vt.
Beckley, Charles Chester.....	Plainfield, N. H.
Beirne, James Patrick.....	Keene, N. H.
Bell, James Henry.....	Montreal, P. Q.
Bennett, George Hoxie.....	Bridgeport, Conn.
Bigelow, Edward Payson.....	Stowe, Vt.
Bingham, Frank Parker.....	Buffalo, N. Y.
Blackman, Chester Eugene.....	Bridgeport, Conn.
Blake, John Mason.....	Fairfax, Vt.
Blodgett, John Henry, Ph. B.....	Grafton, Vt.
Bonney, Charles Augustus, jr.....	New Bedford, Mass.
Botsford, Richard.....	Fort Dodge, Iowa.

NAME	RESIDENCE
Boyer, Arthur Irving.....	New Haven, Conn.
Brazille, Frank Hamilton.....	Camden, Me.
Brown, Edmund Towle.....	Ashland, N. H.
Buffum, John Harold.....	East Dorset, Vt.
Bullard, Ernest Calvin.....	Randolph, Vt.
Burbank, Lester Warren, M. S.....	Walden, Vt.
Burns, Washington Irving.....	Pekin, N. Y.
Caffrey, William Francis.....	Huntington, Mass.
Campbell, Claude M.....	Rochester, Vt.
Campbell, David Newton Emanuel.....	Jamaica, W. I.
Chaffee, Harry Smith.....	Rochester, Vt.
Childs, George Trumbull.....	Wallingford, Vt.
Clement, Allen Bell.....	Burlington, Vt.
Coburn, Irving Smith.....	Belvidere, Vt.
Cogswell, Samuel Johnson.....	Ashburnham, Mass.
Colby, Bernie Dennis, A. B.....	Bristol, Vt.
Collins, J. H.....	Schuylerville, N. Y.
Congdon, William Orson.....	Cuba, N. Y.
Conroy, Edward Cornelius.....	Lawrence, Mass.
Conway, Frank Phillips.....	Hinsdale, N. H.
Cook, Norman Randolph.....	East Jackson, Me.
Cooper, Herbert Leavitt.....	Vineland, N. J.
Courtney, James William.....	Burlington, Vt.
Crotty, Thomas Henry.....	Toronto, Ont.
Cummins, John Patrick James.....	Vineland, N. J.
Cushman, E. R.....	Tunbridge, Vt.
Dame, Fred Russell.....	Franklin Falls, N. H.
Dalton, Martin James.....	Marlboro, Mass.
Davis, Edwin Black.....	Rutland, Vt.
Davis, Stephen Rich.....	Barre, Vt.
Day, Frank Almore.....	East Legrange, Me.
Dean, Charles Henry.....	North Ferrisburgh, Vt.
Dee, Patrick S.....	Keene, N. H.

NAME	RESIDENCE
Dinsmore, Herman Hunter.....	Manchester, N. H.
Donovan, Cornelius Henry.....	Keene, N. H.
Dooley, Timothy Joseph.....	Hartford, Conn.
Dow, Joseph Abner.....	Baldwin, Me.
Drummond, Augustus Bidwell.....	Bangor, Me.
Duffy, Charles Elton.....	Parishville, N. Y.
Eddy, Stanton Seeley, A. B.....	Middlebury, Vt.
Englesby, William Hudson, A. B.....	Burlington, Vt.
Estabrook, Charles Taylor.....	Worcester, Mass.
Fay, Albert Samuel.....	Potsdam, N. Y.
Finch, George Hardy.....	Burlington, Vt.
Fitzgerald, Charles Joseph.....	Middletown, Conn.
Fitzgerald, John E.....	Burlington, Vt.
Flagg, Ernest Jabez.....	Richmond, Vt.
Frisbee, Frank Chester.....	Amsterdam, N. Y.
Gannon, Anthony Joseph, B. S.....	East Boston, Mass.
Gatchell, Worth Tyndall.....	Alton, N. Y.
George, Burt Dutton.....	East Calais, Vt.
Gibson, John.....	Burlington, Vt.
Gillan, William Frederick Aloysius.....	Pawtucket, R. I.
Goddard, Anthony Marvin.....	Hyde Park, Vt.
Godfrey, Thomas Francis.....	Northampton, Mass.
Goudy, Jacob Wade Paul.....	Bristol, Me.
Gravel, Henri.....	Montreal, P. Q.
Greenwood, Albert Joseph.....	Springfield, Vt.
Grinnelle, William Henry.....	Rutland, Vt.
Griswold, Merton Lyman, A. B.....	Brookfield, Vt.
Gustin, Walter Sebra.....	Union Village, Vt.
Hack, Thomas Henry, A. B.....	Orwell, Vt.
Hanson, Herbert Bill.....	Barre, Vt.
Hare, William Andrew.....	Ashburnham, Mass.
Harkness, Waldo Russell.....	Hinesburgh, Vt.
Harrigan, John Darwin.....	Chateaugay, N. Y.

NAME	RESIDENCE
Harriman, David E., jr.....	Danville, Vt.
Hatch, Fred Thornburn.....	Burlington, Vt.
Hawthorn, Jefferson.....	Pittston, Me.
Hazen, Robert, A. B.....	Richmond, Vt.
Héfflon, Oscar Varney.....	Franklin, Vt.
Heidel, Lewis Albert.....	Grant, N. Y.
Herrick M. Van Buren.....	East Fairfield, Vt.
Hill, O. S. C.....	Johnson, Vt.
Hines, Joseph Howard.....	Burlington, Vt.
Howell, Thomas, M. D.....	Winona, Minn.
Hoyt, Frank Alonzo.....	South Reading, Vt.
Hubbard, Harry Varsil.....	Rochester, Vt.
Hubbell, George Fay.....	St. Albans, Vt.
Huntley, Rev. George Arthur.....	England
Hutchings, Stanley, Richards.....	Watertown, N. Y.
Irwin, Vincent Joseph.....	Springfield, Mass.
Jackson, Osceola Ellsworth.....	Fall River, Mass.
Johnson, Robert William.....	Weavertown, Vt.
Johnston, Algy Edward.....	Newport, R. I.
Johnston, Stillwell.....	Vanceboro, Me.
Judd, John Wesley.....	New Lenox, Mass.
Judson, Harry Gray.....	Bethel, Conn.
Kelly, William Francis.....	Bridgeport, Conn.
Kidd, James William.....	Aberdeen, Scotland.
Kimball, Frank Duane.....	Windsor, Vt.
Kinson, William Ripley.....	Burlington, Vt.
Knowles, Wesley Lindley Murray.....	North Ferrisburgh, Vt.
Lenox, Calvin Sampson.....	North Adams, Mass.
Lewis, Harry Elwin.....	Burlington, Vt.
Lewis, George Marshall.....	Panama, N. Y.
Llby, George Warren.....	Colton, N. Y.
Lindridge, Edwin Bennett.....	Brooklyn, N. Y.
Lodge, Patrick Carter.....	Naugatuck, Conn.

NAME	RESIDENCE
Longe, Bertie Duane, B. S.....	Burlington, Vt.
Lowell, Alverne Percy, Ph. B.....	Burlington, Vt.
Lowrey, Grosvenor Porter.....	New York City.
Lunderville, Evroy Paul.....	St. Albans, Vt.
McDonald, D. W.....	Brockton, Mass.
McDonald, William Guillaume.....	Fall River, Mass.
McFarland, William James Remick, A. B....	Flackville, N. Y.
McFee, William David.....	Haverhill, Mass.
McGreevy, John Henry.....	Winooski, Vt.
Mackay, Albert James.....	Peacham, Vt.
McKenna, Oscar Warren.....	Albion, N. Y.
McKone, James, A. B.....	Hartford, Conn.
McNiff, William Joseph.....	Worcester, Mass.
McSweeney, D. Edward.....	North Creek, N. Y.
Marcon, Louis B.....	Hanover, Mass.
Marshall, Lewis Jackson.....	Morrisville, Vt.
Marshall, Velona Alonzo.....	Proctor, Vt.
Maurice, George Byron.....	Waterville, Vt.
Milliken, Walter Sylvester.....	East Baldwin, Me.
Miner, Ross Halford.....	North Pownal, Vt.
Mitchell, Harry Walter.....	Malden, Mass.
Montiflore, Herbert Nathan.....	St. Albans, Vt.
Morse, Charles Frederick.....	Montpelier, Vt.
Moulton, Starr.....	Bridgeport, Conn.
Mountain, Edward John.....	Danville, Que.
Myers, George Ernest.....	Killingby, Conn.
Newhall, Albert Warren.....	Stoneham, Mass.
Oakes, William Edwin.....	Burlington, Vt.
O'Connor, John James.....	Brattleboro, Vt.
O'Neil, Owen Stephen.....	West Chazy, N. Y.
Parker, Charles Fulton.....	West Baldwin, Me.
Patton, John Reynolds.....	Alburgh Springs, Vt.
Perrault, Joseph Gregory.....	St. Hyacinth, P. Q.

NAME	RESIDENCE
Peterson, John Adnea.....	North Heath, Mass.
Phelps, Sidney Prentiss.....	Norwood, N. Y.
Pierce, Wallace Marcella.....	Cambridge, Vt.
Poole, Earl Frederick.....	Charlotte, Vt.
Purple, Robert Huse.....	Woodstock, Vt.
Ranks, Walter Hildreth.....	Lowell, Mass.
Reed, Robert Myron.....	Burlington, Vt.
Reque, Peter Augustine.....	Brooklyn, N. Y.
Reynolds, Clarence Ira.....	Madrid, N. Y.
Robert, George.....	Brattleboro, Vt.
Robson, Rev. John Kelsall.....	Wilmslow, Eng.
Rockwell, Herbert George.....	Newport, N. H.
Rogers, Verne Mooers.....	Ashland, N. H.
Rowley, Alfred Merriam.....	Townshend, Mass.
St. George, Leo.....	Fall River, Mass.
St. Germain, Joseph Arthur.....	Fall River, Mass.
Sargent, Howard Elmer.....	Morrisville, Vt.
Saunders, Edmund Lewis.....	Hartford, Conn.
Sears, Walter Chadwick.....	Portland, Conn.
Seeley, Henry Hamblin.....	Middlebury, Vt.
Shaffer, Samuel Albert.....	Philadelphia, Pa.
Sherrard, Frederick Dana.....	Winn, Me.
Skinner, Charles Rufus, B. S.....	Hoosick Falls, N. Y.
Smith, Fred Forbes, M. D.....	Granville Ferry, N. S.
Spaid, Charles Jacob.....	Philmont, N. Y.
Spiller, Oscar Calvin Henry.....	Bonham, Tex.
Sprague, Charles Benjamin.....	Wadhams Mills, N. Y.
Stafford, John Mather.....	Essex, N. Y.
Starkweather, Carlton Lee.....	New York, N. Y.
Stedman, Harry Willard.....	Springfield, Mass.
Stevens, John Milton.....	Jonesville, Vt.
Stewart, Peter Breadalbane.....	West Superior, Wis.
Stockwell, Herbert Emmons.....	Springfield, Mass.

NAME	RESIDENCE
Stuart, Herbert Arnold, A. B.....	Chipman, N. B.
Styles, Lucius Schuyler.....	New Britain, Conn.
Sullivan, Daniel Webster.....	Passaic, N. J.
Syrett, Edgar Charles.....	Springfield, Mass.
Tilley, William Taft.....	South Burlington, Vt.
Tovey, David William.....	New York, N. Y.
Trotter, John, jr.....	Troy, N. Y.
Tuttle, Frank James.....	Naugatuck, Conn.
Tyndall, William J., jr.....	Burlington, Vt.
Underwood, James Fenton.....	Benton Centre, N. Y.
Upton, Waldo Gene.....	St. Albans, Vt.
Van Deusen, Frederick Ernest.....	Alton, N. Y.
Waller, William John.....	Lowell, Mass.
Washburn, Eber Leslie.....	Lyon Mt., N. Y.
Weymouth, Frank Dana.....	Howland, Me.
Wheatley, Tenney Hall, B. S.....	East Brookfield, Vt.
Wheelock, Albert Andrews.....	Burlington, Vt.
White, Frank Dunster.....	White's Cove, N. B.
Whiteside, George D.....	Vergennes, Vt.
Whitten, Manford Pitt.....	Baldwinsville, Me.
Wilder, Henry Lawrence.....	Swanton, Vt.
Willard, Rodney F.....	East Montpelier, Vt.
Wilson, Robert Browning.....	Washington, Vt.
Wilson, Everand Allen.....	Belfast, Me.
Wiltze, Maurice John, Ph. G.....	Richfield Springs, N. Y.
Woodward, Rowland Nathan.....	Malone, N. Y.

DEGREES CONFERRED IN 1896

HONORARY

DOCTOR OF LAWS

REV. HENRY AUGUSTUS PEARSON TORREY of Burlington

DOCTORS OF DIVINITY

REV. DAVID FOSTER ESTES, of Hamilton, N. Y.

REV. GEORGE WASHINGTON HENDERSON, of New Orleans, La.

IN COURSE

DOCTORS OF MEDICINE

James Thacher Adams	Stanley Richard Hutchings
Lyman Allen, A. B.	Vincent Joseph Irwin
Walter Simpson Bates	Osceola Ellsworth Jackson
John Galt Baylor	John Wesley Judd
John Hiram Bean	Calvin Sampson Lenox
William Preston Beauclerk	George Warren Libby
Arthur Irving Boyer	Bertie Duane Longe, B. S.
Ernest Calvin Bullard	Grosvenor Porter Lowrey
Lester Warren Burbank, M. S.	Everoy Paul Lunderville
W. Irving Burns	Oscar Warren McKenna
Harry Smith Chaffee	Lewis Jackson Marshall
Bernie Dennis Colby, A. B.	Velona Alonzo Marshall
William Orson Congdon	Harry Walter Mitchell
Norman Randolph Cook	Charles Frederick Morse
Herbert Leavitt Cooper	George Ernest Myers
Thomas Henry Crotty	John Adnea Peterson
Edwin Black Davis	Peter Augustin Reque, A. B.
Stephen Rich Davis	George Roberts
Charles Elton Duffy	Herbert George Rockwell
Albert Samuel Fay	Edmund Louis Saunders
Bert Dutton George	Samuel Albert Shaffer
Jacob Wade Paul Goudy	John Mather Stafford
Merton Lyman Griswold, A. B.	Daniel Webster Sullivan
William Andrew Hare	James Fenton Underwood
Jefferson Warren Hawthorne	Eber Leslie Washburn
Van Buren Herrick	Tenney Hall Wheeler, B. S.

MASTER OF ARTS

Florence Lucy Burdick, A. B., 1895

BACHELORS OF ARTS

Charles Ethan Allen	Robert Hazen
George Pomeroy Anderson	Elwin Leroy Ingalls
George Fletcher Beecher	Annie Bowen Leavens
Norris Darling Blake	Florence Joanna May
Thomas Hawley Canfield	Elisabeth Norton
Chauncey Marsh Goodrich	Frederick William Roberts
John Edward Colburn	Mattie Elisabeth Spafford
Erwin Maurice Harvey	Joseph Tuttle Stearns

BACHELORS OF PHILOSOPHY

Charles Atwood Bates	May Aurelia Peck
Frank Parker Bingham	Jessie Scott
John Harold Buffum	Helen Frances Slade
Herbert Bill Hanson	Edith Emma Smith
Leirion Hannah Johnson	Henry Bigelow Shaw
Ruth Ida Norton	

BACHELORS OF SCIENCE IN CIVIL ENGINEERING

Charles Hartt Hagar	Daniel Luman Parker
William John Knox	Ernest Holley West
George Soter Miller	

BACHELORS OF SCIENCE IN MECHANICAL ENGINEERING

Fred Steele English	Nathaniel King
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BACHELORS OF SCIENCE IN ELECTRICAL ENGINEERING

Dana Edwin Bicknell	Sydney Farnsworth Weston
Ernest Henry Chase	Charles Gardner Winslow, A. B.

BACHELORS OF SCIENCE IN CHEMISTRY

Harry DeWitt Giddings	Frank Robert Wright
George Millar Sabin	Lawrence Barnes Hayward

BACHELORS OF SCIENCE IN AGRICULTURE

James Wesley Boyce	Joseph Benjamin Kidder
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HONOR LIST, 1895-96*Class of 1896***DOUBLE HONORS****John Edward Colburn****Chauncey Marsh Goodrich****GENERAL HIGH STANDING****Leirion Hannah Johnson****John Edward Colburn****Chauncey Marsh Goodrich****Helen Frances Slade****SPECIAL HONORS***English* :—**John Edward Colburn***French* :—**May Aurelia Peck***Philosophy* :—**Chauncey Marsh Goodrich****SPEAKERS AT COMMENCEMENT****George Fletcher Beecher****John Edward Colburn****Chauncey Marsh Goodrich****Erwin Maurice Harvey****Joseph Benjamin Kidder****Annie Bowen Leavens****George Millar Sabin****Helen Frances Slade****SPECIAL HONORS***Classes of 1897 and 1898**English* :—**Ide Gill Sargeant***English* :—**Vinton Albert Clark****Adelle Irene Lee****Elwyn Nehemiah Lovewell****Ide Gill Sargeant***German* :—**Vinton Albert Clark***Greek* :—**Peer Prescott Johnson****John Cutler Torrey***Mathematics* :—**Elwyn Nehemiah Lovewell****Carolyn Bailey Nye**

PRIZES

JUNIOR PRIZE FOR PROGRESS

William Allen Orton

FOREST PRIZES IN DECLAMATION

First : Perley Orman Ray

Second : Clarence Willard Richmond

Third : Merton Covey Robbins

JULIA H. SPEAR PRIZES IN READING

First : Ida Maud Miles

Second : Mary Crafts Paddock

Third : Marian Brigham Rustedt

SPEAKERS ON MEMORIAL DAY

1895

Prof. John Ellsworth Goodrich, 1853

Carroll Warren Doten, 1895

Charles Ethan Allen, 1896

1896

Hon. Darwin Pearl Kingsley, 1881

Elwin Leroy Ingalls, 1896

John Stephen Buttles, 1897

The three students reported in 1896 to the U. S. War Department and to the Adjutant General of Vermont, as having shown most aptitude for military service (see p. 66) were the following:

Thomas Hawley Canfield

Sydney Farnsworth Weston

Norris Darling Blake

AMERICAN SCHOOL OF CLASSICAL STUDIES

Through the generosity of several of the Alumni and other friends, the University was enabled, a few years ago, to join the league of Colleges and Universities that maintain the *American School of Classical Studies in Athens*, an institution which has as its object the study of Classical Archæology, and the training of Classical Teachers. The University retains its membership in this league through the generous contributions of the following Alumni and other friends :

R. D. Benedict, '48
 Charles A. Catlin, '78
 John H. Converse, '61
 John H. Denison, '77
 John Dewey, '79
 E. N. Foss
 Lewis Francis, '56
 Horatio Hickok
 George E. Howes
 S. W. Landon, '74
 Philo F. Leavens, '61
 Hamilton S. Peck, '70

E. Henry Powell
 A. E. Richardson
 Robert Roberts, '69
 F. A. Richardson, '95
 Kirby F. Smith, '84
 Mason S. Stone, '88
 E. B. Taft, '71
 W. J. Van Patten
 Frank R. Wells, '98
 J. R. Wheeler, '80
 Norman Williams, '55

STANDARD RAISED

At the beginning of the year 1896-97 the standard of attainment necessary for passing an examination was raised from 50 per cent. to 60 per cent. Those whose scholarship exceeds the minimum pass-mark are grouped in four classes designated by A, B, C, and D, A being the highest. Those who fail reach a standing of 60 per cent. are assigned to a group designated by x.

The Library has just received (February 25) from Thomas H. Canfield, of the class of 1896, the handsome gift of more than 400 volumes, mostly quartos and octavos ;—the Congressional Globe and Record, with other Government publications ; the Colonial History of New York, 10 volumes 4to ; bound files of The Country Gentleman, etc. 20 volumes, etc., etc.

The Library Committee desires to collect all books, essays, pamphlets, etc., written by Officers or Alumni of the University, and would esteem it a great favor if such writings should be sent to the Library for permanent preservation.

Since the last Catalogue was issued 1,675 volumes have been added to the Accession list.

SUMMARY

Graduate Students, 3 ; Seniors, 42 ; Juniors, 56 ; Sophomores, 59 ;	
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CATALOGUE
OF THE
UNIVERSITY OF VERMONT
AND

STATE AGRICULTURAL COLLEGE

BURLINGTON VERMONT

1897-98

CATALOGUE
OF THE
University of Vermont
AND
STATE AGRICULTURAL COLLEGE

BURLINGTON, VERMONT

1897-98

BURLINGTON
FREE PRESS ASSOCIATION
PRINTERS AND BINDERS
1897

CALENDAR

DEPARTMENTS OF ARTS AND SCIENCE

1897

29 Sept., Wednesday, A. M.,	First half-year began.
Thanksgiving Recess,	From Tuesday evening, Nov. 23,
	to Monday noon, Nov. 29.
Christmas Recess,	From Thursday evening, Dec. 23,
	to Tuesday noon, Jan. 4.

1898

27 Jan., Thursday,	Day of Prayer for Colleges.
31 " Monday,	Mid-year Examinations begin.
14 Feb., Monday,	Second half-year begins.
Spring Recess,	From Friday evening, March 25,
	to Tuesday noon, April 5.
2 May, Monday,	Founder's Day.
6 " Friday, 8 P. M.,	Prize Reading for Women Students.
27 " Friday, 8 P. M.,	Interscholastic Prize Speaking.
30 " Monday,	Memorial Day.
16 June, Thursday,	Final Examinations begin.
26 " Sunday, 3 P. M.,	Baccalaureate Discourse.
26 " " 7.30 P. M.,	Anniversary of Y. M. C. A.
27 " Monday,	Class Day.
28 " Tuesday, 9 A. M.,	Meeting of Phi Beta Kappa Society.
28 " " 10 A. M.,	Meeting of Associate Alumni.
28 " " 3 P. M.,	Oration before Associate Alnmni.
28 " " 7.30 P. M.	Prize Speaking.
29 " Wednesday,	Commencement.
30 " Thursday, 9 A. M.,	Entrance Examinations.

SUMMER VACATION

27 Sept., Tuesday, 9 A. M.,	Entrance Examinations.
28 " Wednesday, 8.15 A. M.,	First half-year begins.
8 Oct., Saturday,	Freshman Prize Entrance Exam-
	inations begin.

DEPARTMENT OF MEDICINE

1898

13 Jan., Thursday,	• Lectures begin.
30 June, Thursday,	Exercises of Graduation.

HISTORY AND CHARTERS

"An Act for the purpose of Founding a University at Burlington," was passed by the Legislature of Vermont, Nov. 2nd, 1791, of which the following are the Preamble and First Section:

"Whereas the education of youth is necessary for the advancement of morality, virtue and happiness, and tends to render a people or State respectable; to promote which, establishments for Seminaries and Colleges have ever been patronized by all good governments; and whereas several grants of land have already been made by the State, and private liberal donations have been offered, for promoting so needful an establishment within the same, which demand the attention of this Legislature for laying the foundation for an institution so beneficent to society; therefore,

Section I. It is hereby enacted by the General Assembly of the State of Vermont, that there shall be and hereby is a College instituted and established at such a place in the township of Burlington in the County of Chittenden as the Corporators hereinafter named shall think most convenient for that purpose, to be known and designated by the style of **THE UNIVERSITY OF VERMONT.**"

A subsequent Act gave to the Corporation of the University "full power, right, and authority to appropriate to the use and benefit of the said University forever all such lands as have been already granted and reserved by the authority of this State for the use and benefit of a College."

The Act of Incorporation vested in the Trustees of the University of Vermont full power "to appoint, elect, support and remove from time to time, all such officers and servants as they shall find necessary; to direct the studies of the youth; to establish professorships and professors, and provide for their support; to make and establish all necessary rules, regulations and by-laws for the orderly government of said University (provided always that the said rules, regulations and by-laws shall not tend to give preference to any religious

sect or denomination whatsoever); to grant and confer all such degrees, literary titles, honors and other distinctions as other Universities, Colleges or Seminaries have done or may of right do; and to do any other thing which shall be found necessary for the government and welfare of such an institution."

With the consent of the Corporation certain changes were made by the Legislature in respect to the number and the mode of election of the trustees of the University by Acts passed Nov. 2nd, 1810, and October 31st, 1823, but these were, with like consent, repealed by the Act of October 30th, 1838, which revived and confirmed the provisions of the original charter, which charter remains in full force at the present time, with such modifications as the Corporation of the University accepted in 1865, in accordance with the provisions of the charter of The University of Vermont and State Agricultural College.

In 1862, largely through the exertions of Hon. Justin S. Morrill, then Representative and since Senator from Vermont, Congress passed an "Act donating public lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts." Under the provisions of this Act, the Legislature of Vermont chartered in 1862 the Vermont Agricultural College, which, failing to receive the support necessary to put it into operation, was by an Act approved Nov. 6th, 1865, incorporated with the University of Vermont into one institution by the name of "The University of Vermont and State Agricultural College." This corporation is invested with the property, rights, powers and privileges which belonged to both or either of the corporations so combined, and "shall be and remain a body corporate forever, for the purpose of carrying out the objects contemplated in the respective charters" of the two institutions.

The "objects contemplated" in the charter of the Vermont Agricultural College are stated in the exact language of the Act of Congress providing for Colleges of Agriculture and the Mechanic Arts, as follows:

"The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic

arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

The objects contemplated in the charter of the University of Vermont are stated in the Preamble and Sections as given above.

The charter of the University of Vermont and State Agricultural College requires that "there shall, at all times, be maintained in the institution hereby created such instruction in the various branches of learning as is contemplated in the several charters of each of the institutions hereby united; and more particularly including a four years' course of studies, similar to such as are generally taught in other colleges and not inferior to that recently taught in said University of Vermont; and in addition to that which is usually taught in other colleges, the instruction in this institution shall include such enlarged facilities, and extended scope and variety in the study of those branches which relate to military tactics, agriculture and the mechanic arts, as shall render the whole instruction in conformity with said Act of Congress, as well as with the several charters aforesaid."

Section II of the Charter provides that, for the purpose of receiving property by gift, grant, bequest or otherwise, and for certain other purposes therein specified, each of the original corporations shall be deemed and treated as having continued in life.

Gifts and bequests may therefore be made to (1) The University of Vermont, (2) The Vermont Agricultural College, (3) The University of Vermont and State Agricultural College.

By the provisions of

"An act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of an Act of Congress approved July second, eighteen hundred and sixty-two," the institution receives from the United States Treasury an annual appropriation to be applied "only to instruction in Agriculture, the Mechanic Arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

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 HON. EDWARD HENRY POWELL, *166 College St.*, TREASURER.

* Deceased Nov. 15, 1897. † Deceased Nov. 22, 1897.

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PROFESSORS PERKINS and WAUGH.

Athletic Committee

PROFESSORS HOWES, TUPPER, SLOCUM and WHEELER.

Publication Committee

PROFESSOR GOODRICH and MR. DOTEN.

GENERAL STATEMENT OF INSTRUCTION

Instruction is given in the University in

I. The Department of Arts, which embraces

1. The usual Classical course in the Languages, ancient and modern, Mathematics, Physical Science, Mental, Moral and Political Philosophy, Rhetoric, Literature and History, leading to the degree of Bachelor of Arts;

2. The Literary-Scientific course, in which the studies of the Classical course are pursued with the exception of Greek, and which leads to the degree of Bachelor of Philosophy.

II. The Scientific Departments, embracing the studies required (1) by the Morrill Act of 1862, which provides that instruction be given not only in "Classical and other Scientific studies," but especially in "branches of learning relating to Agriculture and the Mechanic Arts;" and (2) by the Endowment Act of 1890, which provides for instruction in "Agriculture, the Mechanic Arts, the English Language, and the various branches of Mathematical, Physical, Natural and Economic Science, with special reference to their applications in the industries of life."

These Departments are:

1. The Department of Engineering, which includes (a) Civil and Sanitary Engineering; (b) Electrical Engineering; (c) Mechanical Engineering.

2. The Department of Chemistry.

3. The Department of Agriculture.

The degree in each case is Bachelor of Science; see Index, *Degrees*.

III. The Department of Medicine, leading to the degree of Doctor of Medicine.

ADMISSION

Candidates for admission to the University must produce satisfactory testimonials of good moral character and must be at least fifteen years of age.

Students coming from another college must present certificates of regular dismissal from the institution they have left, and furnish satisfactory evidence of proficiency in all the studies—or their equivalents—which have been pursued by the class they propose to enter. For admission to an advanced class, a corresponding increase of age is required, and a thorough knowledge of all the studies which have been pursued by the students of the same class.

Young women are admitted to all courses in Arts and Science upon the same conditions as young men. They are required to room and board in families approved by the Faculty.

REQUIREMENTS FOR ADMISSION TO THE CLASSICAL DEPARTMENT

Greek. (1) Greek Grammar, including Prosody; (2) Xenophon's *Anabasis*, four books; (3) Homer's *Iliad*, three books; (4) Woodruff's *Greek Prose Composition*, or prose work based upon the Xenophon read in class; (5) Translation at sight.

Latin. (1) Latin Grammar, including Prosody; (2) *Cæsar*, four books, or *First Latin Readings* by Arrowsmith and Whicher; (3) *Cicero*, six orations and *De Amicitia*; (4) *Virgil*, six books of the *Æneid* and the *Eclogues*; (5) *Prose Composition*, forty lessons [the method of Moulton's *Preparatory Composition* (*Ginn*) is recommended]; (6) Sight translation.

In the case of Latin and Greek authors, substitutes will be accepted if full equivalents for the work here prescribed.

Teachers are urgently requested to give their pupils practice in reading at sight. They are also urged to have their pupils read aloud

in both Greek and Latin as much as possible, that the ear may be trained to the sound of the language, and that the words may gradually come to convey a meaning to the pupil's mind immediately and not through their English equivalents.

In the pronunciation of Greek, the rules of Hadley and Allen's Grammar, pp. 4, 5, 7, should be followed. The "Roman" method of pronouncing Latin is used in the class room.

Mathematics. (1) Arithmetic, including the metric system; (2) Algebra, through Quadratic Equations; (3) Plane Geometry.

English. (1) English Grammar; (2) Orthoepy; (3) English Composition, to be based for 1898 upon the following works:

Shakspeare's Julius Cæsar and As You Like It; Milton's Paradise Lost, Books i and ii; the Sir Roger de Coverley Papers in the Spectator; Goldsmith's Vicar of Wakefield; Coleridge's Ancient Mariner; Carlyle's Essay on Burns; Lowell's Vision of Sir Launfal; Hawthorne's House of the Seven Gables.

In 1899 upon the following:

Shakspeare's Macbeth; Milton's Lycidas, Comus, L'Allegro, Il Penseroso; Pope's Iliad, i, vi, xxii, xxiv; the Sir Roger de Coverley Papers in the Spectator; Goldsmith's Vicar of Wakefield; Coleridge's Ancient Mariner; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Tennyson's Princess; Hawthorne's House of the Seven Gables.

History. (1) Ancient and Modern Geography; (2) Ancient History; (3) Greek History to Alexander; (4) Roman History to Augustus. The examination in history will be based upon the Students' Series for the East and Greece, and upon Leighton's or Allen's Rome. Myers' Outlines of Ancient History is also recommended.

LITERARY-SCIENTIFIC COURSE

The requirements for admission to the Literary-Scientific course are the same as for the Classical course, except that in place of Greek an equivalent in French or German will be required.

Requirements in French. (1) Proficiency in the elements of French Grammar, implying familiarity with inflection (particular attention being given to irregular verbs) and the essentials of French syntax; (2) the ability to translate ordinary French prose at sight. This should be gained by reading, concurrently with the grammar work, at least six hundred duodecimo pages of standard French literature; (3) The ability to translate easy English sentences into French, to pronounce French, and to recognize French words and phrases when uttered.

The amount of preparatory work required in French may be indicated by the following books: Grandgent's Short French Grammar, and French Lessons and Exercises (High School ed.). About two hundred pages of some French Reader. Halévy's *L'Abbé Constantin*; Daudet's *Contes Choisis*, including *La Belle Nivernaise* (Cameron's ed.) Labiche et Martin's *le Voyage de Monsieur Perrichon*. A novel by Victor Hugo, George Sand, or other standard author. One classic play, by Corneille, Molière or Racine.

Full equivalents for the above works will be accepted, but in no case should the time given to French be less than five recitations a week for two years.

Requirements in German. The following courses are suggested to those who intend to offer German as a substitute for Greek:

First Year. Joynes-Meissner German Grammar and Brandt's Reader; the latter to be followed by as much as can be read of simple works like the *Märchen* of Andersen, Keller's *Dietegen*, or Auerbach's *Brigitta*. *Second Year.* The third part of the same grammar with selections from the *Gedichte* of Goethe, Schiller and Heine; Schiller's *Jungfrau von Orleans* and Heine's *Harzreise*.

In both of these courses the student should be given daily exercises (oral and written) in composition, in the first year translating into German detached sentences, and in the second, simple, connected English prose. Constant dictations in German, as a training to the ear, are recommended. A good collection of phrases is to be

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found in the Meisterschaft System of Rosenthal, and in Meissner's German Conversation.

The entrance examinations, which will be both oral and written, will presuppose a thorough familiarity with the principles and the practice of pronunciation, with the declension of nouns and adjectives, the conjugation of the regular and irregular verbs, and the essentials of German syntax.

Students who offer French or German for admission will not be allowed to take the elementary work in those languages, and then reckon it as a required study. They may, however, take advanced work and have it counted. Literary-Scientific students who enter with deficiencies in French or German may make up such deficiencies by taking the elementary work in those languages *in addition* to the required number of studies.

SCIENTIFIC DEPARTMENTS

The Mathematics, English and History as specified in the requirements for the Department of Arts are required for admission to the Scientific Departments, except that for entrance to the Department of Engineering both *Plane and Solid Geometry* are now necessary. This department will probably soon make the further requirement of Higher Algebra.

While these departments do not *require* preparation in French or German, yet in view of the limited time which can be given to these studies in a professional course, it is very desirable that the entering student should have received some preliminary training in them, and also in Latin. Students who enter the Department of Engineering without such preparation will be expected to give all the time devoted to modern languages, to the study of one language, French or German.

For the conditions of admission to the Departments of Chemistry and Medicine consult the fuller statements of these departments.

Examinations for admission will be held in the large hall of the Science Building (second story) at the close and at the opening of each college year. See Calendar. The results of examinations will

be reported immediately to the Committee on Admission, who will furnish the successful candidates with Certificates of Approval to be presented by them to the President.

ADMISSION BY CERTIFICATE

Candidates will be admitted to any of the above Departments *without examination*, in case they bring Certificates of Graduation from Preparatory Schools whose Courses of Study fully meet the above requirements. If the certificate is defective in respect to any required study, the student will be examined in that study. Certificates must be made out on blank forms furnished by the Registrar. Students admitted by certificate will be regarded as being on probation the first half-year.

SPECIAL EXAMINATION IN ENGLISH

Every candidate for admission to any undergraduate department of the University will be required, at the time of entrance, to give evidence that he can write the English Language in a legible hand and with correctness in spelling, punctuation and construction. And no student will be admitted as a full matriculant until he has satisfied his examiners by a written test that he has read with care and intelligence the English works named in the "Requirement for Admission" (on p. 17) or their equivalents.

Those only who desire to pursue a partial course of study are excepted from this requirement.

ADMISSION OF SPECIAL STUDENTS

Persons of suitable age and attainments may, by special permission of the Faculty and by the payment of a specified fee, pursue certain studies in connection with the regular college classes without becoming matriculate members of the University. The classes which are open to such students, with the conditions of admission, will be made known upon application to the President. Special Students

are members of the University from the time of their admission, but are not candidates for a degree. They enjoy the privileges of the University and are subject to all its regulations.

Special Students must present their credentials to the Committee on Admission for approval and receive an order from the President before admission to the University. They will also inscribe their names upon the University Register.

ENROLMENT

All students are required to enroll themselves in their respective courses of study at the opening of the Annual Session.

On Wednesday, the first day of the session, from 9 A. M. to 12 M., and from 2 to 5 P. M., enrolment cards will be furnished at the room of the Committee on Studies. These cards are to be immediately filled out and submitted to the Committee for their endorsement. When so endorsed they are to be presented by the students to the instructors for their signatures. The cards must be returned to the Committee, properly signed, by the second Wednesday of the Term.

Instructors will make up their class lists only from the endorsed cards presented by the students.

Absences will be counted from the first exercises of the studies chosen.

No changes of studies, except such as are sanctioned by the Committee, will be allowed.

Decision regarding the choice of studies should be reached before the opening of the Annual Session. For this purpose, instructors will gladly advise with students at any time.

REGISTRATION

Every student intending to enter the University should send his Entrance Certificate or other credentials to the Committee on Admission before the Tuesday preceding the opening of the Annual Session. On Tuesday he receives from the Committee a Certificate of Admis-

sion which he carries to the President for his signature. The student then takes the Certificate to the Treasurer and secures his receipt for the entrance fee (\$10.00), whereupon he is entitled to enter his name in the University Register. After registration he is considered a regular member of the University.

COURSES OF INSTRUCTION*

[**Letters in heavy face type** signify: **R**, Required; **E**, Elective; **I, II, III, IV**, first, second, third and fourth year of the course; **A**, first half-year; **B**, second half-year; **Ag**, Agricultural. **Figures** in heavy face type indicate the **number of hours**,† or exercises, per week.]

GREEK

1. Lysias, Selections.—Plato, Apology and Crito.—Homer, Odyssey, four books.—Prose composition, based upon the prose read in the course. **RI4**.
2. Euripides, Iphigenia in Tauris.—Demosthenes, Olynthiacs.—Aristophanes, Clouds.—Sophocles, Oedipus Tyrannus.—Prose composition, based upon the prose read in the course. **EII3**.
3. Greek Private and Social Life.—The private life of the Greeks will be treated in lectures. Collateral reading and subjects for investigation will be assigned. The aim of the course is to present a picture of the Greeks in their daily life. **EIII&IV** (II by special permission) **2**.

*When not otherwise specified, Courses run through the year.

†The "hour" is fifty minutes, except in laboratory work, where it is an hour and fifty minutes.

4. The History of Greek Literature.—The rise and development of the various forms of Greek literature will be treated briefly in lectures. The aim of the course is to encourage the students to read, both in the class and privately, selections from as wide a field of Greek literature as possible. **EIII&IV3.**

[Courses 3 and 4 will be given in alternate years ; course 3 in 1898-99.]

5. Aeschines, Against Ctesiphon.—Demosthenes, On the Crown.—Aeschylus, Seven Against Thebes.—Sophocles, Antigone.—Aristophanes, Frogs. **EIII&IV3.**

PROFESSOR HOWES

LATIN

1. Livy, books i and xxi or xxii.—Tacitus, Germania and Agricola.—Horace, Odes.—Prose composition. **RI4.**
2. Cicero, Tusculan Disputations, book 1.—Plautus, Trinummus and Captivi.—Terence, Andria.—Horace, Epistles and Satires. **EII3.**
3. Quintilian, books x and xii.—Cicero, Letters.—Juvenal.—Persius.—Catullus. **EIII3.**
4. Pliny, Letters.—Seneca, Essays and Medea.—Lucretius.—March's Latin Hymns.—Allen's Early Latin. **EIV3.**

PROFESSOR GOODRICH

ENGLISH

1. Rhetoric, English composition, and etymology.—Elementary course.—Text-books, Hill's Principles of Rhetoric, and Trench on the Study of Words. **RI2.**
2. Criticism and Composition.—Study of invention and of selected prose masterpieces.—Text-books, Genung's Practical

Rhetoric and Rhetorical Analysis.—Constant drill in composition.—Weekly lectures upon the history of English literature, with Stopford Brooke's Primer as a manual. **RII3.**

3. English Literature from the Restoration to the present day.—Lectures and seminary work upon the poets and important literary movements of the last two centuries.—Lectures upon the history and principles of English versification. **E3.**
4. Anglo-Saxon.—Training in early linguistic forms and in development of English.—Literary study of Anglo-Saxon poetry.—Text-book, Bright's Anglo-Saxon Reader. **EA2**
5. Chaucer.—Supplementary to 4.—Further study of linguistic development.—Chaucer's poetry.—Collateral reading in the works of his contemporaries. **EB2.**
6. Shakspeare and his Contemporaries.—Elizabethan drama, lectures and collateral reading. Literary study and textual interpretation of selected plays of Shakspeare.—Text-books, the Globe Shakspeare, Rolfe's editions, and Dowden's Primer. A study of the non-dramatic poetry of the period will complete the course. **E3.**
7. American Literature.—The greatest writers of the country and century will be studied. Lectures, reports, and collateral reading. Text-book, Beers' Outline Sketch of American Literature. **E2.**

[Courses 6 and 7 will be given in 1897-98; courses 3, 4 and 5 in 1898-99. This alternation will enable the student, by a proper choice of electives, to trace through its entire history the linguistic growth and the literary development of English.]

PROFESSOR TUPPER

Members of the Freshman and Sophomore classes are required to deliver two selected declamations during the year. Juniors are

required to debate twice during the year, and Seniors are required to deliver two original orations during the year.

FRENCH

1. *Elementary French.* Grammar, pronunciation, and composition throughout the year; translation of modern French texts,—both prose and poetry; outlines of recent French literature. Text-books: Matzke's Primer of French Pronunciation, Grandgent's Short French Grammar, and French Lessons and Exercises, Van Daell's Introduction to French Authors, Fasnacht's Select Specimens of the Great French Writers of the Nineteenth Century, and Well's Modern French Literature. **I4.**

[Required of Literary-Scientific Freshmen who are conditioned in modern languages, and of Scientific Freshmen who do not present the entrance requirements in German. Elective for Classical and Agricultural students.]

2. *Scientific French.*—Grammar reviewed; Grandgent's French Composition; Herdler's or Bowen's Scientific French Reader. During the second half-year, the class reads the latest issue of the scientific annual, *L'année scientifique et industrielle*. This course may be taken two years in succession. **I3.**

[Required of Scientific Freshmen who present the entrance requirements in French. Elective for others.]

3. *A General Introduction to the History of French Literature.*—Grammar and composition work the same as in Course 2, once a week throughout the year. Select specimens of the great French writers of the 17th and 18th centuries are studied, and three complete plays are read in class. Literary history is studied in Duval's *Histoire de la littérature française*. **I3.**

[Required of Literary-Scientific students who present the entrance requirements in French, but not in German, and for Academic students who have taken Course 1.]

4. *Epic and Lyric Poetry of France during the Middle Ages and the Renaissance.*—The *Chanson de Roland* (in a modern French translation) and the best poems of Villon, Marot, the Pléiade, and the Protestant poets, Du Bartas and D'Aubigné, are read and commented upon in class. Lectures and supplementary readings in modern French upon the origin and development of French epic poetry; the Carolingian, Arthurian, and Greek and Roman cycles; the beginnings of French lyric poetry; satirical poetry,—the *Roman de la Rose* and the *Roman de Renart*; the fixed forms of verse of the 14th and 15th centuries; the revival of Greek and Latin forms; and the Italian influence. **E2.**
 5. *The French Poets of the Nineteenth Century.*—During the first half-year, the class-room work consists of a careful translation and interpretation of selections from Leconte de Lisle; during the second half-year a similar study is made of Sully Prudhomme. Supplementary readings in the other chief poets of the century are also assigned. **E2.**
- [Courses 4 and 5 are given in alternate years, and are elective for students who have satisfactorily completed Course 3. Course 4 will be given in 1898-99. Candidates for Honors in French are required to take both courses in addition to course 6.]
6. *Romance Philology.*—Hereafter candidates for Honors in French will be required to take, as their honor work, one of the two following courses, and, in addition, to present a satisfactory thesis upon some topic connected with the course selected. Any properly qualified student, not a candidate for Honors in French, may pursue either or both these courses and receive therefor a credit of one hour each.
 - a. *Old French and Historical French Grammar.*—Constans' *Chrestomathie de l'ancien français*, and Brachet and Toynbee's *Historical Grammar of the French Language* are the text-books used. **E1.**

b. *Provençal and Comparative Grammar of the Romance Languages.*

—Bartsch: *Chrestomathie provençale* is used as a textbook, and the instruction in the comparative philology of the Romance languages is based upon Meyer-Lübke's *Grammaire des langues romanes*. Students who take this course should also elect Italian or Spanish. **E1.**

A student in the department of Arts who begins French or German in college is required to continue the study a second year.]

PROFESSOR KITCHIN

ITALIAN AND SPANISH

Whenever ten or more students desire it, a course in either Italian or Spanish will be given, but arrangements for such a course for 1898-99 must be made with the Instructor before the close of the present college year. The scope and character of the work may be indicated as follows:

1. Italian.

a. Grandgent's Italian Grammar; composition weekly throughout the year. Bowen's Italian Reader; Pellico: *Francesca da Rimini*. **A3.**

b. Dante: *La Vita Nuova*, entire; *La Divina Commedia*, selected cantos. The history of Italian literature. **B3.**

2. Spanish.

a. Edgren's Spanish Grammar; composition weekly throughout the year; Matzke's Spanish Reader; Galdos: *Dofia Perfecta*. **A3.**

b. Cervantes: *Don Quixote*, selected portions. Calderon: *El Mágico Prodigioso*. The history of Spanish literature. **B3.**

[Both courses will not be given in the same year, but either is elective for students who have had at least one year of French in college.]

PROFESSOR KITCHIN

GERMAN

1. Elementary Course. Joynes-Meissner German Grammar with written exercises; Whitney's German Reader; Gedichte, Goethe, Schiller, Heine. Exercises in conversation based on the systems of Rosenthal and Meissner.

[Alternative with French 1 for Classical Sophomores, and, by special permission, for Literary-Scientific Freshmen who present the French required on p. 18; also to Juniors.]

2. Composition; Joynes-Meissner (part third) with written exercises and exercises in conversation. Gedichte, Goethe and Schiller (continuation, longer poems); Heine's Reisebilder; Goethe's Faust (first part) with introductory lectures.
3. a. Lessing's Laokoon and Schopenhauer's Die beiden Grundprobleme der Ethik will be read in the class. Collateral reading; Lessing's Emilia Galotti and Minna von Barnhelm.
- b. Lectures. Outlines of German literature in the classic period.

PROFESSOR HUFF

[See note at end of French courses.]

PHILOSOPHY

1. Elementary Course.—Brief general introduction to philosophy, in lectures.—Logic; text-book, Minto's Logic Inductive and Deductive.—Ethics; text-book, Murray's Introduction to Ethics. **RIII3.**
2. Advanced Course.—Psychology; lectures and collateral readings in Baldwin's Elements of Psychology and Höffding's Outlines of Psychology.—Fundamental problems of philosophy, lectures, theses and discussions.—Theism; text-book, Flint's Theism. **EIV3.**

3. History of Philosophy.—Lectures and readings in Weber's History of Philosophy, Zeller's Outline of the History of Greek Philosophy and Falckenberg's History of Modern Philosophy. **EIV3.**
4. Metaphysics.—Lectures and text-book; Watson's Philosophy of Kant, in Extracts; also Wenley's outline of Kant's critique. **EIVA2.**
5. Fine Art.—Lectures and text-book; J. Torrey's A Theory of Fine Art. **EIVB2.**

PROFESSOR TORREY

HISTORY

1. General History: Under this head Mediæval and Modern history will be covered in three courses. These will be given in successive years, providing thus a three-years course of consecutive historical study. Collateral reading, topical investigations, and theses will be required. **E3.**
 - a. Mediæval History, from the Fall of Rome to the French Revolution. Study of mediæval institutions, migrations, feudalism, Holy Roman Empire, papacy, crusades, towns, rise of European states, Renaissance and Reformation, colonial expansion.
 - b. Modern European History from the French Revolution to the present. Study of the Revolution, its causes and effects, Napoleonic wars, readjustment of Europe, Germany, Russia, industrial revolution, political and social condition of Europe.
 - c. American History, North and South America. Colonial period, constitutions and society. Conflict between France and England, Revolution, federal union, parties, slavery, civil war, reconstruction, social condition. The emphasis upon social development.

[Course c will be given in 1898-99]

2. **French Revolution:** Seminar course; detailed study of the causes, principles and consequences of the revolutionary movement in Europe. Investigation will be the method, with presentation of results before the class; supplementary lectures. A working knowledge of French will be indispensable. **EMI&IV3.**
 3. **Parliamentary Government:** Seminar course in the detailed study of the origin and development of the parliamentary system of government from Magna Charta to the cabinet. Methods same as in Course 2. **EMI&IV3.**
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SOCIOLOGY

1. **Social Theories:** Examination of various social schemes; Plato's Republic, Cicero's De Republica, Augustine's Civitas Dei, More's Utopia. Modern theories; Comte, Spencer, Kidd, Gumpłowicz, Fouillée, Giddings, collectivism, communism, socialism.
2. **Industrial Era:** a study of modern society under the phase of industrialism. Industrial revolution, inventions, factory, transportation, trade, the modern city. Reaction upon state, culture, religion; consequent reconstruction of society.
3. **Social Institutions:** an historical investigation of their origin and development; primitive and ancient society, family, slavery, property, marriage, civil government, law, rights, classes, religion, philosophy, agriculture, industry, commerce. Lectures, with extensive collateral reading, research and theses. **EMI&IV.**

[The above courses will be given in successive years; course 1 in 1898-99.]

PROFESSOR EMERSON

POLITICAL SCIENCE

1. Political Economy.—Text-book, F. A. Walker's Advanced Political Economy. Lectures and discussions. **EIII3.**
2. Constitutional History: Cooley's U. S. Constitution.—Comparative constitutional law; lectures and collateral readings. International law; Lawrence's Principles of International Law the basis of instruction.—Political Economy applied to open questions by lectures and discussions. **EIV2**

PRESIDENT BUCKHAM

MATHEMATICS

1. a. Solid and Spherical Geometry.
- b. Algebra.—Arithmetical and Geometrical Progression, Convergence and Summation of Series, Binomial and Exponential Theorems, Logarithms, and a brief introduction to the Theory of Equations.
- c. Plane Trigonometry. **RI5.**
- 1*. a. Algebra, as in course 1 b. above.
- b. Plane Trigonometry.
- c. Analytic Geometry. **RI5.**

DR. BULLARD

[Course 1* is for Engineering Students.]

2. Review of Analytical Trigonometry, followed by Spherical Trigonometry and a short course on Practical Astronomy, nine weeks. In December, Synthetical Geometry of Conics. After Jan. 1st, Analytic Geometry, lectures. **EII4.**
3. a. Differential Calculus.
- b. Integral Calculus and Differential Equations. Lectures. **E3.**
4. a. Methods used in the solution of problems of construction in Elementary Geometry.
- b. Introduction to modern Projective Geometry. Lectures. **E3.**

5. **Functions of a Complex Variable, and Elliptic Functions; Elementary.** Text-book, Durège, with supplementary lectures, chiefly on Conform Representation. **E3.**

[Courses 4 and 5 will probably be given in alternate years.]

PROFESSOR DANIELS

A candidate for Honors may choose his subject from studies in Analytical Geometry, Modern Geometry, Higher Algebra, Differential Equations, Mathematical Physics.

PHYSICS

1. **General Physics.**—Mechanics, properties of matter, heat, sound, light, electricity and magnetism. Text-book, Ames' Theory of Physics. Lectures and laboratory work. **4**

[Required of Chemical and Engineering Sophomores. Those electing this course should be familiar with the elements of Trigonometry.]

2. **Light.**—Preston's Theory of Light and Basset's Physical Optics used as basis of lectures. Lectures and laboratory work. **2.**
3. **Heat.**—Maxwell's or Preston's Heat and Zeuner's Thermodynamik used as basis of lectures. Lectures and laboratory work. **3.**
4. **Electricity and Magnetism.**—Emtage's or Nipher's Electricity and Magnetism used as text-book. Lectures and laboratory work. **4.**
5. **Mathematical Physics.**—Methods of solving the differential equations of physics with application to problems in mechanics, sound, heat and electricity. Text-books used as basis of lectures: Forsythe's Differential Equations, Rieman's Partielle Differentialgleichungen, Wal-

ton's Collection of Problems in Mechanics, Donkin's Acoustics, and Fourier's Analytical Theory of Heat. Lectures, 4.

[Courses 2 and 3 will not be given in 1898-99.]

PROFESSOR SLOCUM

NATURAL SCIENCES

1. Physiology and Hygiene.—Lectures. **RI1.**
2. Physiology, advanced course.—Recitations from Martin's Human Body, and lectures, fully illustrated by diagrams and models. **EIII&IV2.**
3. Elements of the Biology of Animals.—Lectures and laboratory work. **2.**

[Elective for students who have taken Chemistry 1 a.]

4. Advanced Biology of Animals.—Laboratory work in the study of vertebrate morphology. **3 to 6.**

[Elective for students who have taken Course 3.]

5. Entomology.—Lectures and laboratory course in structural and systematic entomology, with special reference to insects which are injurious to vegetation. **B2.**
6. Anthropology.—Lectures and collateral reading. A general survey of the ethnological, social, moral and intellectual characteristics of the principal races of the world is followed by a discussion of the origin and development of laws, government, arts, industries, language, literature and religious systems. So far as practicable the lectures are illustrated by maps, plates, photographs and specimens. **EIII&IV A3.**

*The "hour" in laboratory work is equal to an hour and fifty minutes.

7. Geology.—Recitations and lectures.—Le Conte's Elements.
III&IV B3.

PROFESSOR PERKINS

- . Mineralogy, Descriptive and Determinative.—Dana's Manual of
Mineralogy. **A3.**

[Required of Engineering and Chemical students, open to Classical students who
have taken Chemistry I.]

BOTANY

1. Elements of Botany: During the first half-year the work deals with the structure and physiology of the flowering plants. During the second half a comparative laboratory study is made of selected types representing the larger orders of these plants, supplemented by field work and the determination of species. One recitation or lecture and two laboratory exercises per week. **E3.**
2. Elements of Biology of Plants: A study of typical species of plants with reference to structure, physiology, development and relationship. Recitations, lectures and laboratory exercises. Text-book, Parker's Elementary Biology. **III3.**
3. Plant Physiology: A series of laboratory experiments with collateral reading, investigation of a special subject, and thesis. One lecture and two laboratory exercises per week. **EA3.**
4. Plant Pathology: A study of the nature and causes of plant diseases. This course is offered under two heads:
 - a. Lectures, collateral reading and demonstrations, the economic parts of the subject being especially considered. **RAgIVB3.**
 - b. Advanced course; includes the work of 4a and also laboratory and research work upon bacteriology and mycology. **E3.**

5. **Advanced Laboratory work :** The subjects for investigation and the extent of the courses will be arranged to meet the needs of the individual student.

PROFESSOR JONES and MR. ORTON

HORTICULTURE

1. Propagation, nursery management, pruning, horticultural classification. **RAgIIB3.**
2. Pomology, large and small fruits, with field and laboratory work and excursions to points of horticultural interest. **RAgIIIA3.**
3. Landscape Gardening : the philosophy of art as applied to landscape study, with a consideration of the history of landscape art and a study of modern works. Lectures, illustrations, readings and field work. **EA2.**
4. Forestry: The botany of native forest trees, with a study of forest management. **EB2.**
5. Special electives are offered to individual students in various lines of horticulture, such as evolution, landscape gardening, pomology, and the study of leading horticultural works in French or German.

PROFESSOR WAUGH

ENGINEERING

DRAWING

1.
 - a. Mechanical drawing and lettering. **IA*2.**
 - b. Detail working drawings of machines. **IIA1.**
 - c. Construction of gear teeth. **IIB2.**
 - d. Analysis of valve gears, and steam engine details. **IIIA3, B2.**

*In Drawing and Laboratory Work all " hours " are of one hour and 50 minutes duration.

2.
 - a. Elementary projections and descriptive geometry. **IB2.**
 - b. Descriptive geometry and isometric projections. **IIA3.**
 - c. Stereotomy. **IIB2.**
3.
 - a. Topographical drawing, pen and colored topography. **IB1.**
 - b. Map construction. **IIB2.**
 - c. Mapping surveys. **IIIA4.**
4.
 - a. Structural drawing. **IVA4.**
 - b. Problems in designs. **IVB3.**

PROFESSORS BARBOUR, VOTEY, and AYER, and MR. SMITH.

SURVEYING

1.
 - a. Use of Instruments.—Compass, level and transit; land surveying; recitations and field work. **B1.**
 - b. Summer School of Surveying.—Land surveying, traversing, leveling and topographical surveying. One month in summer vacation.
2.
 - a. Computing and plotting work of Summer School. **A2.**
 - b. City Surveying.—Solar compass and transit; recitations, lectures and field work. **B1.**
 - c. Summer School of Surveying.—Geodetic, hydrographic and topographical surveying. One month in summer vacation.
3.
 - a. Computing and mapping work of Summer School. **A2.**
 - b. Railroad Surveying.—Recitations and field work. **B2.**

PROFESSOR VOTEY and MR. SMITH

MECHANICS

1.
 - a. Force and Energy: representation and measurement of forces, their composition and resolution, equilibrium, velocity and acceleration, mechanical work, centrifugal force, energy of rotating bodies, moment of inertia, impact, centre of gravity.

- b. Elasticity and Resistance of materials, theory of flexure and torsion, shear and bending moment, elastic limit and working stresses.
 - c. Determination of Stresses in roof and bridge trusses, analytical and graphical methods. **III4.**
- 2. Stresses in Trusses from wheel loads, graphical statics, study of arches and retaining walls, designing of plate girders and trusses. **IV5.**
- 3. Hydraulics; pressure of water on plane and curved surfaces, centre of pressure, theoretical and actual discharge through orifices and weirs. Flow of water in long pipes, reaction and impact of water, laboratory and field measurement. **IV4.**

PROFESSOR BARBOUR

CIVIL ENGINEERING

- 1. Materials, their properties, preparation and use.
 - a. Stone, brick, lime, cement, mortar, concrete and masonry. Lectures and laboratory work. **A2.**
 - b. Timber, iron, steel and other metals. Lectures and laboratory work. **B2.**
- 2.
 - a. Construction of roads, streets and pavements. Lectures, recitations, field and laboratory work. **B2.**
 - b. Foundations of structures on land and in water. Lectures. **A2.**
 - c. River improvements; harbor and canal construction; railway construction, equipment and management. Lectures. **B1.**
- 3.
 - a. Contracts and specifications. Lectures and recitations. **B1.**

PROFESSOR VOTEY and MR. SMITH

SANITARY ENGINEERING

Water supply, sewerage, plumbing, heating and ventilation.
Lectures, drawing and laboratory work. **A3.**

PROFESSOR VOTEY

MECHANICAL ENGINEERING

1. a. Elementary Mechanism.—The transmission of motion by rolling and sliding contact, by linkages and by wrapping connectors; trains of mechanism; aggregate combinations of mechanism. **A2.**
b. Gearing and Machine Tools.—Theory and construction of correct gear tooth curves. Construction of the driving and feed mechanisms of standard machine tools. **B3.**
2. a. Steam Engineering.—Analysis of plain slide valve motions by the aid of the Zeuner and Bilgram diagrams; link motions and radial reversing gears; double and detachment valve gears. Construction and use of the steam engine indicator. First and second laws of thermodynamics; laws of perfect gases and saturated vapors; elementary theory of the heat engine. **A4.**
b. Steam Engineering.—Theory and practice of the steam engine. Construction and care of steam boilers. Pumps and pumping engines. Theory and construction of the injector. **B4.**
c. Mechanical Engineering Laboratory.—Determination of the errors of thermometers, steam gauges, planimeters and indicator springs; steam engine tests; tests of steam calorimeters. **B2.**
3. a. Dynamics of Machines.—Analysis and design of steam engine governors and fly wheels. Theory and design of multiple-expansion steam engines. **A4.**
b. Motors and the Transmission of Power.—Gas, oil and hot-air engines; hydraulic motors; rope driving; measurement of power; use of compressed air; mechanical refrigeration. **B4.**

- c. **Machine Design.**—Application of mechanics to the design of steam boilers and power transmission machinery; steam engine design. **A&B3.**
- d. **Mechanical Engineering Laboratory.**—Tests of steam boilers and pumps, and the measurement of power. **B2.**
- 4. **Machinery and Motors.**—Elementary study of steam engines, boilers, pumps and power transmission machinery. **A2.**

[Required of Seniors in the departments of Chemistry and Civil Engineering.]

PROFESSOR AYER

SHOP-WORK

- 1. **Carpentry.** **B2.**
- 2. a. Wood turning and pattern making. **A2.**
b. Pattern making, moulding and founding. **B3.**
- 3. a. Forging of iron and steel. **A3.**
b. Chipping, filing and lathe work. **B3.**
- 4. **Machine shop work.** **A&B3.**

MR. EATON

ELECTRICAL ENGINEERING

- 1. **Electricity and Magnetism:**—elementary principles, Ohm's law, the magnetic circuit. April-June, **2.**
- 2. a. **Theory of potential;**—Wheatstone's bridge, Kirchhoff's laws, etc. Dec.—mid-year, **2.**
b. **Electro-magnetic induction:**—elementary principles of dynamos; includes some laboratory work. **B2.**
- 3. a. **Dynamo-electric machinery:**—construction of direct and alternating current dynamos, including comparison of the various types of field and armature windings. **A4.**
b. **Electrical laboratory work:**—determination of characteristic curves, motor efficiencies, etc. **A3.**

- c. Dynamo and motor designing. Analytical and graphical treatment of circuits containing resistance and self-induction. **B4**
- d. Electrical laboratory work:—tests of dynamo efficiencies by means of transmission dynamometer; determination of stray field by use of ballistic galvanometer; practice in coupling dynamos in series and parallel. **B3**.
- 4. a. Electric lighting and power transmission:—discussion of arrangement of power station, including sources of power, best types, sizes and number of units, etc.; also calculations on laying out distributing system, discussion of best apparatus and relative cost. **A3**.
- b. Analytical and graphical treatment of circuits containing resistance, capacity and mutual induction. Designing of transformers. **B2**.
- c. Electrical laboratory work:—experiments with inertia coils and condensers; tests of efficiencies of transformers. **B3**.
- d. Electric railways:—use of storage batteries, multi-phase currents, rotary converters, etc. Telegraph and telephone; discussion of capacity effects in cables, testing, etc. Specifications. **B3**.
- e. Multi-phase currents:—types of apparatus, arrangement of circuits, measurement of power, etc. **B2**.
- f. Electrical laboratory work:—tests of efficiency and regulation of two-phase and three-phase machines, plotting curves of alternating electro-motive force and current, etc. **B3**.
- g. Thesis:—a paper based on original research or constructive work, with the approval and under the supervision of the instructor in charge. **B2**

PROFESSOR STORRS

CHEMISTRY

1. General Chemistry.
 - a. Lectures. **A&B2.**
 - b. Laboratory work.—Elementary experiments and elementary qualitative analysis. **A&B2.**

[Elective for students in the Classical department.]
2. Qualitative Analysis.—Advanced course; laboratory work, with lectures and recitations. **A3.** Elementary quantitative analysis. **B3.**
3. Quantitative Analysis.—Laboratory work, with class meetings for discussion of methods. One year or longer. **4.**
4. Stoichiometry.—Lectures. **A2.**
5. Industrial Chemistry.
 - a. Assaying.—Ores, furnace products, etc. **A3.**
 - b. Lectures.—Inspection of constructional plans of works, with occasional excursions to manufacturing establishments, when such may be made conveniently. **B1.**
6. History of Chemistry.—Lectures. Eight weeks. **1.**
7. Organic Chemistry.
 - a. Lectures.—Theory and synthesis of carbon compounds. **A&B2.**
 - b. Laboratory work.—Preparation of compounds, analyses, etc. **8.**
 - c. Commercial organic analysis.—Lectures. **AorB2.**

[Courses 5 b and 7 a are given in alternate years]

Practical use of the Spectroscope is offered to students who are qualified for that order of work, at some convenient time during the four years.

PROFESSOR MERRILL and Messrs. GIDDINGS and WHITNEY

AGRICULTURE

1. Soils, tillage, drainage, fertilizers. Text-books, King's The Soil, Roberts' The Fertility of the Land; Lectures, recitations, collateral reading and theses. **RIIA5.**

2. Agricultural Grasses; a study of their botanical relationships and economic values. **RIIB1.**
3. a. Stock Feeding; animal nutrition, fodders and feeds, feeding standards and rations. Lectures, recitations, collateral reading and theses. **RIIIA** till Dec. 4.
b. Dairying. Lectures, laboratory work and recitations. **12.**

[January session of the Dairy School.]

4. Stock Breeding, breeds of live stock. Text-book, Miles' Stock Breeding. Lectures, recitations and laboratory work (scoring cattle). **RIIIB4.**
5. Philosophy of Evolution; its practical demonstration and application in breeding and selecting farm and garden crops. Lectures. **RIII.** Elective to others having sufficient preparation.
6. Original investigation for theses; laboratory and library research upon some subject pertaining to agriculture, botany, horticulture or veterinary science, under the direction of the instructor in charge. **IVA&B3.**

PROFESSORS HILLS, JONES AND WAUGH, AND DR. RICH

VETERINARY SCIENCE

1. Comparative Anatomy of domestic animals. Text-book, Strangeway's Anatomy. Lectures and recitations. **IA2.**
2. Comparative Physiology of domestic animals. Text-book, Kirk's Human Physiology. Lectures and recitations. **IB3.**
3. Histology. Text-book, Kirk's Human Physiology. Lectures and recitations. **IIA2.**
4. Diseases of domestic animals; theory and practice of veterinary medicine. Lectures, recitations and clinics. **IIB3.**

DR. RICH

LECTURES AND RECITATIONS—HOUR-PLAN.

	8 30—9 30	9 30—10 30	10 30—11 30	11 30—12 30
MONDAY	Math. 1* A. S. Math. 2 F. N. Latin 1 E. S. History 3 D. S. Philosophy 1 E. N. Hydraulics Sc. H. Steam Eng. Mech. Agr. 3 & 4 Exp. Vet. Sci. 3 Sc. H.	Physics 1 Sc. H. Sociology D. S. Greek 2 E. S. English 1 D. N. Philosophy 3 E. N. Mechanics Mech.	Math. 1** A. S. Greek 1 D. S. Latin 2 E. S. German 1** D. N. Math. 3 F. N. Org. Chem. Sc. H. Agricul. 1 Exp. Vet. Sci. 4 Exp. Entomology Sc. H.	German 1 D. N. French 1 E. S. Anthropology M. Geology M. Vet. Sci. 1 & 4 Exp. Stoichiom. Sc. H. Veg. Path. Sc. H.
TUESDAY	Math. 1* A. S. Math. 2 F. N. Latin 1 E. S. History 1 D. S. Philosophy 2 E. N. Economics D. N. Ital. and Span. Hydraulics Sc. H. Steam Eng. Mech. Agr. 3 & 4 Exp.	Chem. 1 Sc. H. History 2 D. S. Pol. Sci. 2 D. N. Greek 4 A. S. Physics 5 Sc. H. French 3 E. S. Mechanics Mech. Vet. Sci. 4 Exp. Agricul. 1 Exp. Horticul. 2 Exp.	Math. 1** A. S. Greek 1 D. S. Latin 3 E. S. Math. 4 & 5 F. N. Philos. 4 & 5 E. N. German 2 D. N. English 2 Sc. H. Mechanism Mech.	German 1 D. N. French 1 E. S. Physiol. 2 Sc. H. Agricul. 6 Exp. Vet. Sci. 2 Sc. H. Hort. 3 & 4 Exp.
WEDNESDAY	Math. 1* A. S. History 3 D. S. Philosophy 1 E. N. Agr. 3 & 5 Exp. Mil. Sci. (Soph.)	Physics 1 Sc. Sociology D. S. Greek 2 E. S. Biology 2 Sc. H. English 1 Sc. H. Philosophy 3 E. N.	Math. 1** A. S. Latin 2 E. S. German 1** D. N. Math. 3 F. N. Org. Chem. Sc. H. Agricul. 1 Exp. Horticul. 1 Exp.	Anthropology M. Geology M. Physics 4 Sc. H. French 2 E. S. German 3 D. N. Stoichiom. Sc. H.
	Engineering Construction	Mech.		

THURSDAY								
Math. 1*	A. S.	Chem. 1	Sc. H.	Math. 1**	A. S.	German 1	D. N.	
Math. 2	F. N.	History 2	D. S.	Greek 1	D. S.	German 1**	D. N.	
Latin 1	E. S.	Pol. Sci. 2	D. N.	Latin 3	E. S.	French 1	E. S.	
History 1	D. S.	Greek 4	A. S.	Math. 4 & 5	F. N.	Physiol. 2	Sc. H.	
Philosophy 2	E. N.	Physics 5	Sc. H.	Philos. 4 & 5	E. N.	Agricul. 6	Exp.	
Economics	D. N.	French 3	E. S.	German 2	D. N.	Hort. 3 & 4	Exp.	
Ital. and Span.		Mechanics	Mech.	English 2	Sc. H.			
Agr. 3 & 5	Exp.	Agricul. 1	Exp.	Mechanism				
Hydraulics	Sc. H.	Hort. 1 & 2	Exp.					
Steam Eng.	Mech.							
					Laboratory Work in Physics 4			Sc. H.
FRIDAY								
Math. 1*	A. S.	English 1	D. N.	Math. 1**	A. S.	German 1	D. N.	
Math. 2	F. N.	Botany 1	Sc. H.	Greek 1	D. S.	French 1	E. S.	
Latin 1	E. S.	Sociology	D. S.	Latin 2	E. S.	Anthropol.,	M.	
History 3	D. S.	Physics 5	Sc. H.	German 1**	D. N.	Geology	M.	
Philosophy 1	E. N.	Greek 2	E. S.	Math. 3	F. N.	Veg. Path.	Sc. H.	
Steam Eng.	Mech.	Philosophy 3		Horticult. 1	Exp.			
Agr. 3 & 5	Exp.	Horticult. 2	Exp.	Agricul. 1	Exp.			
Engineering Construction			Mech.	Entomology		Sc. H.		
SATURDAY								
History 1	D. S.	English 1	D. N.	Latin 3	E. S.	Hygiene	Sc. H.	
Philosophy 2	E. N.	History 2	D. N.	Math. 4 & 5	F. N.	French 2	E. S.	
Economics	D. N.	Physics 5	Sc. H.	Philos. 4 & 5	E. N.	German 3	D. N.	
Ital. and Span.		Greek 4	D. S.	English 2	D. S.	Mil. Sci. (Jun.)		
Hydraulics	Sc. H.	Biology†	Sc. H.	German 2	D. N.	Agricul. 6	Exp.	
Agr. 3 & 4	Exp.	French 3	E. S.	Vet. Sci. 1	Exp.	Vet. Sci. 3	Sc. H.	
			Mechanics			Ind. Chem.	Sc. H.	
			Vet. Sci. 4	Exp.				
Engineering Section.		Sc. H.	Williams' Science Hall.	D. S.		Room D, South College		
Scientific Section.		Mech.	Mechanical Building.	E. S.		" " " "		
Classical Section.		Exp.	Experiment Station,	A. N.		" " " "		
Biology of Plants.		M.	Museum.	D. N.		" " " "		
Biology of Animals.		A. S.	Room A, South College.	E. N.		" " " "		
				F. N.		" " " "		

* Engineering Section.

** Scientific Section.

*** Classical Section.

† Biology of Plants.

‡ Biology of Animals.

Sc. H. Williams' Science Hall.

Mech. Mechanical Building.

Exp. Experiment Station,

M. Museum.

A. S. Room A, South College.

LECTURES—HOUR PLAN				
	2.00—3.00		3.00—4.00	
MONDAY	French 4 & 5	E. S.	English 6	D. N.
	Mil. Sci. (Fresh.)		Math. 1***	A. S.
	Greek 5	D. S.	Declamation (Soph.)	
	Mechanical Engineering Drawing (Soph.)		Sc. H.	
	Laboratory work in Botany 1		Sc. H.	
	Laboratory Work in Mineralogy		Sc. H.	
	Shop Work (Juniors)		Mech.	
				4.00 to 5.00
TUESDAY	Indust. Chem.	Sc. H.	English 7	D. N.
			Greek 3	D. S.
			Math. 1***	A. S.
	Laboratory Work in Biology of Plants		Sc. H.	
	Laboratory work in Physics 1		Sc. H.	
	Shop Work (Juniors)		Mech.	
				Gen- eral Drill
WEDNESDAY	French 4 & 5	E. S.	English 6	D. N.
	Greek 5	D. S.	Math. 1***	A. S.
	Laboratory Work in Mineralogy		Sc. H.	
	Laboratory Work in Chemistry 1		Sc. H.	
	Laboratory Work in Botany 1		Sc. H.	
	Shop Work (Sophomores)		Mech.	
THURSDAY	Mil. Sci. (Seniors)		English 7	D. N.
	Declamation (Fresh.)		Greek 3	D. S.
			Math. 1***	A. S.
	Laboratory Work in Biology of Plants			
	Laboratory Work in Physics 1			
	Shop Work (Juniors)			
FRIDAY	French 4 & 5	E. S.	English 6	D. N.
	Greek 5	D. S.	Math. 1***	A. S.
	Laboratory Work in Biology of Animals			
	Laboratory Work in Mineralogy			
	Laboratory Work in Chemistry 1			
	Shop Work (Sophomores)			
				Gen- eral Drill.

For abbreviations, see preceding page.

PERIODICALS WANTED

The following list of volumes needed to complete our files of periodicals is printed in the hope that some of our friends may be willing to supply our deficiencies from the accumulations in their attics:

Academy (London), v. 23-30; American Architect, v. 1-18; American Naturalist, v. 1, 6-11, 13-19; American Presbyterian Review, v. 1-11; Appleton's Journal, old series, v. 1-17; Arena, v. 1-4, 15-date; Athenæum (London), 1892; Baptist Quarterly, complete; Barnard's American Journal of Education, complete; Blackwood's Magazine, v. 1-5, 9-38, 51-54, 61-64, 68, 92; British Quarterly Review, v. 1-52; Catholic World, v. 1-10, 14-16, 18, 20-41, 45-46; Charities Review, complete; Christian Examiner, v. 5-6, 16, 20-21, 25-34, 37-41; Critic (N. Y.), old series, v. 1 & 2; Democratic Review, v. 4-6, 12, 15, 19, 28-29, 32-43; Dial (Chicago), v. 1-11; Eclectic Magazine, v. 1-15, 64, 66-date; Electrical Engineer, v. 1-10; Electrical World, v. 1-16; Electrician, v. 1-28; Harper's Weekly, v. 4-12, 25-29; Lippincott's Magazine, complete; Literary World (Boston), v. 1-9; McClure's Magazine, complete; Macmillan's Magazine, complete; Methodist Magazine, v. 1-11; Methodist Quarterly, v. 1-22; Missionary Review of the World, old series, v. 1-10; Nature, v. 3-32 and Jan.-Oct., 1894; New England Magazine, old series, v. 1-6; New Review, complete; North British Review, v. 38-43; Public Opinion, v. 1-5; Railroad Gazette, v. 1-30; Review of Reviews, v. 1-3; Saturday Review, complete; Scientific American, v. 1-29; Scientific American Supplement, v. 1-2; Scottish Review, v. 1-8; Southern Quarterly Review, v. 1-7, 14-1856; Spectator, v. 1-57; Westminster Review, v. 1-19.

Gifts of these magazines, either in volumes, bound or unbound, or in separate numbers, will be appreciated. Expressage will be paid or postage refunded, if the donors wish.

Library, University of Vt., December, 1897.

LECTURES AND RECITATIONS—HOUR-PLAN.

	8 30—9 30	9 30—10 30	10 30—11 30	11 30—12 30
MONDAY	Math. 1* A. S. Math. 2 F. N. Latin 1 E. S. History 3 D. S. Philosophy 1 E. N. Hydraulics Sc. H. Steam Eng. Mech. Agr. 3 & 4 Exp. Vet. Sci. 3 Sc. H.	Physics 1 Sc. H. Sociology D. S. Greek 2 E. S. English 1 D. N. Philosophy 3 E. N. Mechanics Mech.	Math. 1** Greek 1 D. S. Latin 2 E. S. German 1** D. N. Math. 3 F. N. Org. Chem. Sc. H. Agricul. 1 Exp. Vet. Sci. 4 Exp. Entomology Sc. H.	German 1 D. N. French 1 E. S. Anthropology M. Geology M. Vet. Sci. 1 & 4 Exp. Stoichiom. Sc. H. Veg. Path. Sc. H.
TUESDAY	Math. 1* A. S. Math. 2 F. N. Latin 1 E. S. History 1 D. S. Philosophy 2 E. N. Economics D. N. Ital. and Span. Hydraulics Sc. H. Steam Eng. Mech. Agr. 3 & 4 Exp.	Chem. 1 Sc. H. History 2 D. S. Pol. Sci. 2 D. N. Greek 4 A. S. Physics 5 Sc. H. French 3 E. S. Mechanics Mech. Vet. Sci. 4 Exp. Agricul. 1 Exp. Horticult. 2 Exp.	Math. 1** Greek 1 D. S. Latin 3 E. S. Math. 4 & 5 F. N. Philos. 4 & 5 E. N. German 2 D. N. English 2 Sc. H. Mechanism Mech.	German 1 D. N. French 1 E. S. Physiol. 2 Sc. H. Agricul. 6 Exp. Vet. Sci. 2 Sc. H. Hort. 3 & 4 Exp. Laboratory Work in Physics 4 Sc. H.
WEDNESDAY	Math. 1* A. S. History 3 D. S. Philosophy 1 E. N. Agr. 3 & 5 Exp. Mil. Sci. (Soph.)	Physics 1 Sc. Sociology D. S. Greek 2 E. S. Biology 2 Sc. H. English 1 Sc. H. Philosophy 3 E. N.	Math. 1** Latin 2 E. S. German 1** D. N. Math. 3 F. N. Org. Chem. Sc. H. Agricul. 1 Exp. Horticult. 1 Exp.	Anthropology M. Geology M. Physics 4 Sc. H. French 2 E. S. German 3 D. N. Stoichiom. Sc. H.
	Engineering Construction	Mech.		

THURSDAY							
Math. 1*	A. S.	Chem. 1	Sc. H.	Math. 1**	A. S.	German 1	D. N.
Math. 2	F. N.	History 2	D. S.	Greek 1	D. S.	German 1**	D. N.
Latin 1	E. S.	Pol. Sci. 2	D. N.	Latin 3	E. S.	French 1	E. S.
History 1	D. S.	Greek 4	A. S.	Math. 4 & 5	F. N.	Physiol. 2	Sc. H.
Philosophy 2	E. N.	Physics 5	Sc. H.	Philos. 4 & 5	E. N.	Agricul. 6	Exp.
Economics	D. N.	French 3	E. S.	German 2	D. N.	Hort. 3 & 4	Exp.
Ital. and Span.		Mechanics	Mech.	English 2	Sc. H.		
Agr. 3 & 5	Exp.	Agricul. 1	Exp.	Mechanism	Mech.		
Hydraulics	Sc. H.	Hort. 1 & 2	Exp.				
Steam Eng.	Mech.						
				Laboratory Work in Physics 4			
				Sc. H.			
FRIDAY							
Math. 1*	A. S.	English 1	D. N.	Math. 1**	A. S.	German 1	D. N.
Math. 2	F. N.	Botany 1	Sc. H.	Greek 1	D. S.	French 1	E. S.
Latin 1	E. S.	Sociology	D. S.	Latin 2	E. S.	Anthropol.,	M.
History 3	D. S.	Physics 5	Sc. H.	German 1**	D. N.	Geology	M.
Philosophy 1	E. N.	Greek 2	E. S.	Math. 3	F. N.	Veg. Path.	Sc. H.
Steam Eng.	Mech.	Philosophy 3		Horticul. 1	Exp.		
Agr. 3 & 5	Exp.	Horticul. 2	Exp.	Agricul. 1	Exp.		
Engineering Construction				Entomology			
				Sc. H.			
SATURDAY							
History 1	D. S.	English 1	D. N.	Latin 3	E. S.	Hygiene	Sc. H.
Philosophy 2	E. N.	History 2	D. N.	Math. 4 & 5	F. N.	French 2	E. S.
Economics	D. N.	Physics 5	Sc. H.	Philos. 4 & 5	E. N.	German 3	D. N.
Ital. and Span.		Greek 4	D. S.	English 2	D. S.	Mil. Sci. (Jun.)	
Hydraulics	Sc. H.	Biology	Sc. H.	German 2	D. N.	Agricul. 6	Exp.
Agr. 3 & 4	Exp.	French 3	E. S.	Vet. Sci. 1	Exp.	Vet. Sci. 3	Sc. H.
				Ind. Chem.			
				Sc. H.			
* Engineering Section.		Sc. H. Williams' Science Hall.		D. S.		Room D, South College	
** Scientific Section.		Mech. Mechanical Building.		E. S.		" " " "	
*** Classical Section.		Exp. Experiment Station,		A. N.		" " " "	
§ Biology of Plants.		M. Museum.		D. N.		" " " "	
|| Biology of Animals.		A. S. Room A, South College.		E. N.		" " " "	
				F. N.		" " " "	

* Engineering Section.

** Scientific Section.

*** Classical Section.

§ Biology of Plants.

|| Biology of Animals.

LECTURES—HOUR PLAN				
	2.00—3.00		3.00—4.00	
MONDAY	French 4 & 5	E. S.	English 6	D. N.
	Mil. Sci. (Fresh.)		Math. 1***	A. S.
	Greek 5	D. S.	Declamation (Soph.)	
	Mechanical Engineering Drawing (Soph.)		Sc. H.	4.00
	Laboratory work in Botany 1		Sc. H.	to
	Laboratory Work in Mineralogy		Sc. H.	5.00
	Shop Work (Juniors)		Mech.	
TUESDAY	Indust. Chem.	Sc. H.	English 7	D. N.
			Greek 3	D. S.
			Math. 1***	A. S.
	Laboratory Work in Biology of Plants		Sc. H.	General Drill
	Laboratory work in Physics 1		Sc. H.	
	Shop Work (Juniors)		Mech.	
WEDNESDAY	French 4 & 5	E. S.	English 6	D. N.
	Greek 5	D. S.	Math. 1***	A. S.
	Laboratory Work in Mineralogy		Sc. H.	
	Laboratory Work in Chemistry 1		Sc. H.	
	Laboratory Work in Botany 1		Sc. H.	
	Shop Work (Sophomores)		Mech.	
THURSDAY	Mil. Sci. (Seniors)		English 7	D. N.
	Declamation (Fresh.)		Greek 3	D. S.
			Math. 1***	A. S.
	Laboratory Work in Biology of Plants			
	Laboratory Work in Physics 1			
	Shop Work (Juniors)			
FRIDAY	French 4 & 5	E. S.	English 6	D. N.
	Greek 5	D. S.	Math. 1***	A. S.
	Laboratory Work in Biology of Animals			General Drill.
	Laboratory Work in Mineralogy			
	Laboratory Work in Chemistry 1			
	Shop Work (Sophomores)			

For abbreviations, see preceding page.

DEPARTMENT OF ARTS

FACULTY

MATTHEW H. BUCKHAM, D. D., President, *Political Science*.
HENRY A. P. TORREY, LL. D., *Intellectual and Moral Philosophy*.
GEORGE H. PERKINS, Ph. D., *Physiology, Geology, Anthropology*.
JOHN E. GOODRICH, D. D., *Latin*.
SAMUEL F. EMERSON, Ph. D., *History*.
NATHAN F. MERRILL, Ph. D., *Chemistry*.
ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.
LEWIS J. HUFF, *German*.
LEWIS R. JONES, Ph. B., *Botany*.
WILLIAM C. KITCHIN, Ph. D., *French and Italian*.
FREDERICK TUPPER, Jr., Ph. D., *Rhetoric and English*.
ALLISON WING SLOCUM, A. M., *Physics*.
GEORGE E. HOWES, Ph. D., *Greek*.
LIEUT. CHARLES J. BAILEY, *Military Science and Tactics*.
CARROLL W. DOTEN, Ph. B., *Elocution*.
WARREN G. BULLARD, Ph. D., *Mathematics*.

REQUIRED AND ELECTIVE STUDIES

I. Candidates for the degree of A. B., after pursuing a required course of Greek, Latin, Mathematics, English and Hygiene through the Freshman year, are allowed to elect a certain number of their studies, the number increasing in the later years of the College course until the Senior year, when all studies, except those of the Military department, are elective. Each student is required to take such a number of Electives as will bring his total work up to fifteen recitation or lecture hours per week, not including those of Military Drill. The abuse to which a system of perfectly free electives is liable is

avoided by the requirement of a certain number of studies which are intended to secure some completeness and symmetry of discipline, while the number of electives permitted gives room for the development of special talents and the following out of individual predilections. The electives are offered in such a way as to permit extended study of any subject or group of subjects of which the student may wish to make a specialty. For example, Greek, Latin, English and Mathematics may be pursued through most of the time during the four years; French and German each for three years; Physical Science, History, and the Social, Intellectual and Moral Sciences, for from two to three years.

The electives embrace studies in Greek and Latin; French and German, including studies in Comparative Literature; the higher Mathematics, including Calculus and the New Geometry; History; Political and Social Science; English Literature; Chemistry, theoretical and applied, with laboratory work; Physics; Geology; Botany; Zoology; Biology; Anthropology; Metaphysics; the History of Philosophy; the Theory of Fine Art.

Other subjects, in which classes are likely to be small, like Anglo-Saxon and Italian, will be offered occasionally, at such intervals as to give all students an opportunity to take them at some time during their college course.

II. Candidates for the degree of Ph. B. will have the same required courses and the same electives as candidates for the degree of A. B., except that, omitting Greek, they will begin the study of French and German one year earlier and will select in the second year from the more advanced electives.

III. Persons who may desire to take a short academic course preparatory to the study of medicine may take the first two years of the course leading to the degree of Ph. B., with any of the electives of the entire department for which they have the requisite preparation.

IV. Students in any of the other departments may, by special permission of the Faculty, take a limited number of electives from the departments of Engineering and Chemistry.

V. It is assumed that the choice of electives will be made by the student with reference to some clear, deliberate purpose, and as the result of consultation with members of the Faculty. In all cases the natural sequence of studies must be observed. The Faculty reserve the right to exclude a student from any course for which his previous studies have not properly prepared him.

The studies pursued and taught in the department of Arts are divided into seven sections:

Languages, Mathematics, Natural Sciences, History, Rhetoric and English Literature, Social and Political Science, Moral and Intellectual Philosophy.

THE CHOICE OF ELECTIVES

The studies of Freshman year are all prescribed. For Classical students they are: *Greek, Latin, Mathematics, English and Hygiene*; for Literary-Scientific students Greek is replaced by *French*.

With Sophomore year the system of Elective studies begins. It is designed to start students upon those different paths which lead to specialization in different branches. It is important therefore that studies should be chosen with a view to a definite goal. The Prescribed studies of Sophomore year are *English, and one Modern Language*. The Elective studies of Sophomore year are *Greek, Latin, Elementary German, Elementary or Intermediate French, History, Mathematics, Chemistry, Physics, Botany*. If Classical studies are the goal, Greek and Latin should be chosen, and German would be a valuable accessory. If it is the aim to emphasize the Literary studies, German and French should be elected. Mathematics is the best preparation for physics, and Chemistry for the biological sciences.

Every student should endeavor to secure a working knowledge of at least one modern language, and *no language should be pursued for less than two years*.

The studies of Junior year should continue the lines elected in Sophomore year, and the studies of Senior year should complete the same, but opportunity should be secured for the enrichment presented in the Philosophical, Political, Social and Historical studies. In this way a relatively high degree of specialization may be combined with the advantages of liberal studies. No student, however, will be allowed to enter a course when in the opinion of the instructor his previous studies have not properly prepared him for it.

The requirement of Military instruction has recently been extended so as to include Seniors.

DEPARTMENT OF ENGINEERING

FACULTY

MATTHEW H. BUCKHAM, D. D., President, *Political Science*.

VOLNEY G. BARBOUR, Ph. B., C. E., Dean of Faculty,
Bridge Construction and Mechanics.

JOSIAH W. VOTEY, C. E., *Civil Engineering*.

HARRY A. STORRS, C. E., *Electrical Engineering*.

ARTHUR W. AYER, B. S., *Mechanical Engineering*.

GEORGE H. PERKINS, Ph. D., *Natural History*.

NATHAN F. MERRILL, Ph. D., *Chemistry*.

ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.

LEWIS J. HUFF, *German*.

WILLIAM C. KITCHIN, Ph. D., *French*.

FREDERICK TUPPER, JR., Ph. D., *English Language and Literature*.

ALLISON W. SLOCUM, A. M., *Physics*.

LIEUT. CHARLES J. BAILEY, *Military Tactics*.

JAMES EATON, *Shop Work*.

CARROLL W. DOTEN, Ph. B., *Elocution*.

WARREN G. BULLARD, Ph. D., *Mathematics*.

GEORGE E. P. SMITH, B. S., *Civil Engineering*.

CIVIL ENGINEERING

Instruction is given by means of lectures, recitations and work in the field, laboratory and drawing-room. Technical essays are required at frequent intervals on topics connected with the various subjects as they are taken up. Excursions are made by the classes to engineering works and work-shops for the study of details and methods of construction.

The subjects pursued comprise:

Mathematics, including algebra, plane and spherical trigonometry, analytical geometry, calculus and least squares; *General Chemistry*, *Astronomy*, *Physics*, *Geology*, *Mineralogy*, *French*, *German*, *Political Economy* and *English*.

Mechanics, including analytical and graphical determination of stresses in the various kinds of roof and bridge trusses, of the thrust and stability of arches and retaining walls, and of the flow of water in pipes and open channels. For the field work in hydraulics the department is equipped with triangular and rectangular wiers, floats and current meters, which are used by the students in determining the flow of streams.

Drawing, embracing general projection drawing, isometric, perspective and topographical drawing, shading and coloring, spherical projections and map drawing, plans of surveys, ornamentation and lettering, and the detail and working drawings of structures in wood, iron and stone. This work is carried on throughout the entire year.

Engineering Construction, including the general properties of building material, as stone, cements, mortar, brick, wood and the metals, the construction of foundations in water and on land, and of superstructures and tunnels, of railroads, canals, water works, drainage and sewerage works, and the improvement of harbors and rivers. In connection with the study of materials, tests of the strength of cements, wood, stone, iron and steel are made. For this work the department

has a 2000 pound Riehlé cement tester, a 50,000 pound Riehlé general testing machine, a Henning & Marshall electric micrometer, a Mahn extensometer and a 200,000 pound Olsen automatic and autographic machine, fitted with a long transverse bed for beam testing.

Surveying, both theory and practice. The theory of instruments, and all the operations of surveying, laying out work and computing, are explained in detail. The Summer School of surveying affords abundant opportunity for becoming familiar, by actual work in the field, with the methods of work and the use and adjustment of the instruments.

Highway Engineering. The general principles of the location and building of country roads and city streets are first treated, followed by the construction in detail of Macadam and Telford roads and the various forms of street pavements. Visits are made to quarries, stone-crushing plants, and roads in process of construction. The engineering laboratory has a complete equipment for testing road material.

Sanitary Engineering, including the subjects of sewerage, sewage disposal, water supply, the plumbing, heating and ventilation of buildings.

Attention is given also to the preparation of *Specifications* and *Contracts*.

In bridge work the theory of stresses, and the details of construction of the various classes of bridges are taken up. Drawings and blue prints of recent constructions from leading bridge companies are used to illustrate modern practice in this work.

The Library and Reading Room are well furnished with engineering literature, the reading room being supplied with many of the American and foreign engineering periodicals.

The special studies of the department may be taken as a graduate course, occupying two years. Young men who are so situated as to be unable to take full work, but who would be glad to receive instruction in special branches, may, by permission of the President,

and on giving evidence of sufficient preparation, join the classes in those studies, but they cannot be candidates for a degree.

SUMMER SCHOOL OF SURVEYING

The Field Work in surveying is carried on mainly at the Summer School of Surveying. This course is required of the students in Civil Engineering in the Sophomore and Junior classes, and permission to attend may be granted to students from any other class or department. Any young man not a member of the University, if properly fitted for the work, will be admitted to the school upon application.

Members of the University are required to pay a fee of five dollars for incidental expenses.

Text-books.—Church's Descriptive Geometry; Merriman and Brook's Surveying; Johnson's Surveying; Lanza's Mechanics; Searle's Field Engineering; Johnson's Modern Framed Structures; Patton's Foundations; Merriman's Hydraulics; Byrne's Highway Construction; Merriman's Least Squares; Johnson's Contracts and Specifications; Carpenter's Heating and Ventilation.

FRESHMAN YEAR

[For explanation of letters and figures in thick type, see p. xi.]

A. *Drawing**—Course 1 a, **2**. *Mathematics*.—Algebra and Trigonometry, **5**. *Chemistry*.—Lectures, **2**. Laboratory, **2**. *French or German*.—Course 1, **4**. *English*.—Course 1, **2**. *Hygiene*.—Lectures, **1**.

B. *Drawing*.—Course 2 a, **2**. Course 3 a, **1** (April to June). *Surveying*.—Course 1 a, **1** (April to June). *Mathematics*.—Analytical Geometry, **5**. *Chemistry*.—Lectures, **2**. Laboratory, **2** (until April). *French or German*.—Course 1, **4**. *English*.—Course 1, **2**. *Hygiene*.—Lectures, **1**.

Vacation. *Surveying*.—Course 1 b, one month. **Engineering Thesis.**

*In Drawing and Laboratory Work all exercises are of two hours' duration.

SOPHOMORE YEAR

A. *Drawing*.—Course 2 b, **3**. *Surveying*.—Course 2 a, **2**. *Mathematics*.—Calculus, **4**. Spherical Trigonometry, **1**. *Physics*.—Course 1, Lectures, **2**. Laboratory, **2**. *French or German*.—**2**. *English*.—Course 2, **2**.

B. *Drawing*.—Course 2 c, **2**. Course 3 b, **2**. *Surveying*.—Course 2 b, **1**. *Mathematics*.—Calculus, **4**. Astronomy, **1**. *Physics*.—Course 1, Lectures, **2**. Laboratory, **2**. *French or German*.—**2**. *English*.—Course 2, **2**.

Vacation. *Surveying*.—Course 2 c, one month. Engineering Thesis.

JUNIOR YEAR

A. *Mechanics*.—Course 1, **4**. *Civil Engineering*.—Course 1 a, Materials of Construction, **2**. *Drawing*.—Course 3 c, **4**. *Surveying*.—Course 3 a, **2**. *Mineralogy*.—**3**. *Political Economy*.—**3**.

B. *Mechanics*.—Course 1, **4**. *Civil Engineering*.—Course 1 b, Materials of Construction, **2**. *Railroad Surveying*.—Course 3 b, **2**. *Drawing*.—Course 4 a, **2**. *Highway Engineering*.—Course 2 a, **2**. *Geology*.—**3**. *Political Economy*.—**3**.

Vacation. Engineering Thesis.

SENIOR YEAR

A. *Mechanics*.—Course 3, Hydraulics, **4**. Course 2, Graphical Statics, **5**. *Sanitary Engineering*.—**3**. *Civil Engineering*.—Course 2 b, Foundations, **2**. *Drawing*.—Course 4 a, **4**.

B. *Mechanics*.—Course 2, Advanced Bridge Work, **3**. *Civil Engineering*.—Course 2 c, **1**; Course 3 a, Contracts and Specifications, **1**. *Drawing*.—Course 4 b, **3**. *Machinery and Motors*.—**2**. *Mathematics*.—Least Squares, **2**. *Hydraulic Field Work*. Graduating Thesis.

MECHANICAL ENGINEERING

The instruction in Mechanical Engineering aims to give the student such a training as will enable him to become a successful designer of machinery, or to approach from the best standpoint any problem relating to the generation, transmission or application of power. The ground work of this training is given by means of recitations and lectures covering the general theory and practice of the subjects treated, and these are supplemented by extended courses in the drawing-room and workshops, and in the engineering laboratory.

No strictly professional subjects are taken up in the Freshman year, but much time is devoted to mathematics and drawing, these being considered the most important factors in the work of the following years. The Sophomore year is devoted to the more elementary subjects of the profession, such as elementary combinations in machines, gear-tooth construction and the mechanism of machine tools. The Junior year is devoted almost wholly to steam engineering, and the Senior year to machine design and to advanced and special lines of professional work. Outside the department, instruction is given in English, French, German, the higher mathematics, political economy, chemistry, physics, general mechanics, hydraulics and the testing of materials of construction.

Shop Equipment. The carpenter and pattern shop contains, in addition to fourteen carpenter benches, and a full line of tools for manual work, twelve wood-turning lathes, an eighteen-inch pattern-maker's lathe, two circular saws and a scroll saw. The foundry is supplied with a cupola furnace, brass furnace, core-oven and a complete outfit for bench and floor moulding. The forge shop contains eight forges and anvils, a hand drill, a punching and shearing machine and all the hand tools necessary for instruction in this branch. The machine shop is equipped with filing and chipping benches, four engine lathes, two hand lathes, a planer, a shaping machine, two upright drills, a milling machine, a grinding machine

and a wet emery grinder, together with a large assortment of machinists' hand tools and fixtures.

Mechanical Engineering Laboratory. A twenty-five horse power Harris-Corliss engine, which also provides power for the shops, two smaller vertical engines and a fifty horse-power tubular boiler are available for engine and boiler tests. A surface condenser and air pump may be used in connection with the engine during tests. The laboratory contains also two steam pumps, a twelve-inch weir with hook-gauge, a friction brake, indicators and planimeters, several calorimeters, a steam injector arranged for testing, a steam-gauge tester, a draught gauge, apparatus for measuring the flow of steam and numerous minor pieces of apparatus used in connection with these.

FRESHMAN YEAR

[See Note at middle of p. 21.]

A. Mathematics.—Higher Algebra and Plane Trigonometry, 5. *Chemistry.*—Lectures, 2; Laboratory, 2. *Drawing.*—Elementary Mechanical Drawing and Lettering, 2. *French or German*, 4. *English.*—Course 1, 2. *Hygiene*, 1.

B. Mathematics.—Analytic Geometry, 5. *Chemistry.*—Lectures, 2; Laboratory, 2. *Drawing.*—Elementary Projection, 2. *French or German*, 4. *English.*—Course 1, 2. *Hygiene*, 1. *Shop-work.*—Carpentry, 2.

SOPHOMORE YEAR

A. Mathematics.—Calculus, 4. *Mechanical Engineering.*—Elementary Mechanism, 2. *Drawing.*—Details of Machines and Making of Blue Prints, 1. *Physics.*—Course 1, 4. *French or German*, 3. *English.*—Course 2, 2. *Shopwork.*—Wood-turning and Pattern Making, 2.

B. Mathematics.—Calculus, 4. *Mechanical Engineering.*—Gear-Teeth and Mechanism of Machine Tools, 3. *Drawing.*—Details of Machines and Construction of Gear-Teeth, 2. *Physics.*—Course 1, 4.

French or German, 3. English.—Course 2, 2. Shopwork.—Pattern Making, Molding and Founding, 2.

JUNIOR YEAR

A. Mechanical Engineering.—Valve Gears, Indicators, and Thermodynamics, 4. *Drawing.*—Analysis of Valve Gears and Steam Engine Details, 3. *Mechanics.*—Course 1, 4. *Political Economy, 3. Shopwork.*—Forging, 3.

B. Mechanical Engineering.—Thermodynamics, Boilers, Pumps and Injectors, 4. *Drawing.*—Assembly Drawings of Machines, 2. *Mechanical Engineering Laboratory.*—Engine and Calorimeter Tests, 2. *Mechanics.*—Course 1, 4. *Political Economy, 3. Shopwork.*—Chipping, Filing and Lathe Work, 3.

SENIOR YEAR

A. Mechanical Engineering.—Dynamics of Machines, 4. Machine Design, 3. *Hydraulics, 4. Materials of Construction, 2. Shopwork.*—Machine Shop, 3.

B. Mechanical Engineering.—Motors and the Transmission of Power, 4; Machine Design, 3. *Mechanical Engineering Laboratory*—Boiler, Pump and Power Tests, 2. *Materials of Construction, 2. Shopwork.*—Machine Shop, 3. *Hydraulic Fieldwork.* Graduating Thesis.

ELECTRICAL ENGINEERING

Descriptive statements of the Electrical Engineering course and of the facilities for work afforded by the laboratories and shops may be found in the bulletins of the Department of Engineering. Broadly it may be stated that it is the aim of this course to provide the student with a substantial working knowledge of the fundamental principles underlying all engineering practice, and especially to instruct him as thoroughly as time will permit in the theory and uses of electrical instruments and machines.

Preparatory to the technical subjects are the courses in English, modern languages, mathematics, drawing and chemistry; then follow mechanics, physics, thermodynamics, etc.; and finally steam engineering, hydraulics, engineering construction and electrical engineering. About half the student's time during Junior and Senior years is devoted to the several subjects included under courses 3 and 4 of Electrical Engineering (see page 40). Courses 1 and 2 are intended to present some fundamental principles in their practical bearing in electrical work, in order to stimulate and guide the student in his reading and observation during Freshman and Sophomore years; they also serve as introduction to the more technical work of the last two years and are open to students in other departments.

Throughout the course the lecture-room instruction is supplemented by practical and experimental work in the laboratories and shops. Excellent facilities are furnished in the Williams Science Hall for all laboratory work in physics, chemistry, electricity and magnetism. For the use of students in electrical engineering there are now provided dynamos and motors ranging in size from one-twelfth to thirty-three horse-power, including single, two- and three-phase machines, as well as several older types; also many kinds of transformers, batteries, lamps and measuring instruments. Through the generosity of Dr. Williams the present equipment is being steadily increased, thus insuring good facilities for thorough practical training.

The following are the required studies leading to the degree of B. S. in Electrical Engineering.

FRESHMAN YEAR

[See Note at middle of p. 21.]

A. Mathematics.—Higher Algebra and Trigonometry, **5**. *Chemistry.*—Lectures, **2**; Laboratory, **2**. *Modern Languages*; French **1** or German, **4**. *Natural Science* **1**, **1**. *English*, **2**. *Drawing* **1 a**, **2**.

B. Mathematics.—Analytical Geometry, 5. *Modern Language*, 4. *English* 1, 2. *Natural Science* 1, 1. *Drawing* 2 a, 2. *Chemistry.*—Lectures, 2; Laboratory, 2. [This laboratory work ends in March.] *Electrical Engineering* 1, 2. Shop work 1, 2.

Vacation. *Surveying* 1 b. (elective).

SOPHOMORE YEAR

A. Mathematics.—Calculus, 4. *Physics* 1, 4. *Modern Language*, 3. *Mechanical Engineering* 1 a, 3. *Drawing* 1 b, 1. *English* 2, 2. *Shopwork*, 2. [Ends at Thanksgiving recess]. *Electrical Engineering* 2 a, 2.

B. Mathematics.—Calculus, 3. *Physics* 1, 4. *Modern Language*, 3. *Mechanical Engineering* 1 b, 3. *Drawing* 1 c, 2. *English* 2, 2. *Electrical Engineering* 2 b, 3.

Vacation. *Surveying* 2 c (elective).

JUNIOR YEAR

A. Electrical Engineering 3 a, 4, and 3 b, 3. *Mechanics* 1 a, 4. *Mechanical Engineering* 2 a, 4. *Drawing* 1 d, 3.

B. Electrical Engineering 3 c, 4, and 3 d, 3. *Mechanics* 1 b and c, 4. *Mechanical Engineering* 2 b, 4, and 2 c, 2. *Surveying* 3 b, 2 (elective for students who have taken course 1 b).

SENIOR YEAR

A. Electrical Engineering 4 a, b and c, 8. *Mechanics* 3, 4. *Physics* 4, 4. *Shopwork*, 2. *Civil Engineering* 1 a, 2.

B. Electrical Engineering 4 d, e, f and g, 9. *Physics* 4, 4. *Shopwork*, 2. *Civil Engineering* 1 b, 2.

DEPARTMENT OF CHEMISTRY

FACULTY

MATTHEW H. BUCKHAM, D. D., President.

NATHAN F. MERRILL, Ph. D., *Chemistry*.

GEORGE H. PERKINS, Ph. D., *Natural History*

LEWIS J. HUFF, *German*.

WILLIAM C. KITCHIN, Ph. D., *French*.

ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.

FREDERICK TUPPER, Ph. D., *English Language and Literature*.

ALLISON W. SLOCUM, A. M., *Physics*.

LIEUT. CHARLES J. BAILEY, *Military Science and Tactics*.

HARRY D. GIDDINGS, B. S., *Quant. Anal. and Assaying*.

CHARLES F. WHITNEY, B. S., *Gen. Chem. and Qual. Anal.*

In this Department, during the first year, every student attends about seventy lectures and recitations in General Chemistry, and as soon after the beginning of the year as it seems advisable, enters the laboratories, where he pursues graded and systematic work, beginning with a schedule of experiments designed to illustrate fundamental principles and cultivate familiarity with the common elements and their compounds. From the outset quantitative methods are followed as far as practicable.

Qualitative Analysis is next studied. The work includes the use of the spectroscope and the examination of commercial products. Lectures and recitations continue through the course.

After the completion of Qualitative Analysis, Quantitative Analysis is begun, the student proceeding through the simpler determinations to more difficult analyses. The course embraces gravimetric and volumetric methods with applications to analyses of commercial

products. Occasionally the students meet together and present statements of work done in the laboratory with discussion of methods, etc. In this way each student may derive benefit from the work done in the laboratory by the entire class.

In the Junior or Senior year Organic Chemistry is taken up both in the class-room and in the laboratory. This course involves the preparation of organic compounds and their analysis. Students of ability will be encouraged to undertake original investigations under the special supervision of the head instructor.

Lectures are given upon Industrial processes and these lectures are occasionally supplemented with excursions to manufacturing establishments. In the third year facilities are offered, and instruction is given, in Crystallography, Mineralogy and Assaying of Ores by both fire assay and wet assay. A short course of lectures on the History of Chemistry is given.

During the Senior year instruction is given in those parts of mechanical engineering which have a direct bearing upon the chemical industries. This work includes lectures upon prime movers, boilers and pumps, the elements of machines and the proportioning of shafting, pulleys and belts, together with some actual practice in the management of boilers and steam engines.

FRESHMAN YEAR

[See Note at middle of p. 21]

A. R.—Chemistry, Lectures, 2. Laboratory,* 2. Mathematics, 5. Drawing, 2. English, 2. French, 4.

B. R.—Chemistry, Lectures, 2. Laboratory, 2. Drawing, 2. Mathematics, 5. English, 2. French, 4.

SOPHOMORE YEAR

A. R.—Laboratory, 3. Physics, 4. German, 4. English, 2. French, 3. **E.**—Analytics, 3. History, 3.

*Laboratory "hours" are of double length.

B. R.—Laboratory, 3. Physics, 4. German, 4. English, 2. French, 3. **E.**—Mathematics, or History, as in first half-year.

JUNIOR YEAR

A. R.—Laboratory, including Mineralogy, Blow-pipe Determinations and Assaying, 7. Stoichiometry, 2. Physiology, 2. German, 3. **E.**—Calculus, 3.

B. R.—Laboratory, 7. Commercial Organic Analysis, 2. Physiology, 2. German, 3. **E.**—Mathematics as in first half-year.

SENIOR YEAR

A. R.—Laboratory, 7 to 9 hours. Organic Chemistry, lectures, 2. Machinery and Motors, 2.

B. R.—Laboratory. Organic Chemistry, lectures, 2. Industrial Chemistry. History of Chemistry. Geology, 3. Theses.

NOTE. The lectures in Organic Chemistry and in Industrial Chemistry are usually given to Juniors and Seniors together, in alternate years.

Students who can pass the examinations of the first year in French, may take the second-year courses in that study in their Freshman year. Students who begin French in Freshman year and German in Sophomore year must continue French through Sophomore year. Students who begin German in Sophomore year and finish French in that year, must continue German during Junior year. A two years' course in both French and German is required.

After Freshman year students will be required occasionally to write essays upon subjects relating to their principal study, and these will be criticised with respect to their correctness as English compositions.

Certain of the studies of the Senior year in the Classical department may be optional with a corresponding amount of laboratory work throughout this year.

All the courses in Chemistry are open as electives to such students in the Classical and Literary-Scientific departments as are qualified to pursue them.

It is desirable that applicants for admission to full standing in the Department of Chemistry as candidates for its degree should have had the regular classical course—the usual preparation for college—at some school whose certificates are recognized by this University. In case of deficiency in Latin or Greek or in both of those languages in the preparatory course, the applicant may present himself for examination in French or German or in both; and satisfactory attainments in the elements of these languages will be accepted in lieu of Greek and Latin.

Students showing proper qualifications may be admitted to a special course in Chemistry by permission of the President and of the Professor of the department; but such students cannot receive the degree.

B. *Agriculture*—Grasses, 1. *Botany*, 3. *Horticulture*, 3. *Veterinary Science*—Diseases of Animals, 3. *Surveying*, 2. *English*, 3. *French or German*, 4.

JUNIOR YEAR

A. *Agriculture*—Stock Feeding, Dairying, 4. *Horticulture*, 3. *Biology of Plants*, 3. *French or German*, 4. *Electives*—Physics, Landscape Gardening, Shopwork, English.

B. *Agriculture*—Stock Breeding, Breeds of Live Stock, 3; Plant Breeding, 3. *Entomology*, 2. *French or German*, 4. *Electives*,—Physics, Forestry, Biology of Plants, Shopwork, English.

SENIOR YEAR

A. *Agriculture*—Original Investigation for thesis, 3. *Electives*—Bacteriology and Mycology, Biology of Animals, Plant Physiology, Shopwork, Political Science, Anthropology, History, French or German, English.

B. *Original Investigation for Thesis*, 3. *Plant Physiology*, 3. *Geology*, 3. *Electives*—Bacteriology and Mycology, Vegetable Pathology, Biology of Animals, Shopwork, Political Science, Road Making, History, French or German, English.

DAIRY SCHOOL

The seventh annual session of the Dairy School begins on Monday, January 10, 1898, and closes on Saturday, February 6th. The school is designed to teach in a practical manner the manufacture of butter with the latest and most approved apparatus. Three courses aggregating about fifty lectures are given on the constitution and production of milk, its creaming and churning, best methods of handling, testing, etc. Text-books with quizzes are used so far as practicable. Several hours of actual work with dairy machinery are given each day.

The names of the students cannot be given here, as this catalogue is issued several weeks before the opening of the session. The class is limited to fifty, and in previous years this or a larger number of students has attended the school.

VERMONT AGRICULTURAL EXPERIMENT STATION

BOARD OF CONTROL

Pres. M. H. BUCKHAM, *ex-officio*, *Chairman*.
 Hon. E. J. ORMSBEE, *Brandon*.
 Hon. CROSBY MILLER, * *Pomfret*.
 Hon. CASSIUS PECK, *Burlington*.
 Hon. G. S. FASSETT, *Enosburgh*.

OFFICERS OF THE STATION

J. L. HILLS.....*Director and Chemist*
 G. H. PERKINS.....*Entomologist*
 L. R. JONES.....*Botanist*
 F. A. WAUGH.....*Horticulturist*
 F. A. RICH.....*Veterinarian*
 CASSIUS PECK.....*Farm Superintendent*
 B. O. WHITE.....*Assistant Chemist*
 C. H. JONES.....*Assistant Chemist*
 W. A. ORTON.....*Assistant Botanist*
 J. C. ROBINSON.....*Dairyman*
 MARY A. BENSON.....*Stenographer*
 E. H. POWELL.....*Treasurer*

The Experiment Station was established as a department of the University of Vermont and State Agricultural College in 1886. The

*Deceased.

State made a small appropriation to it for four years. Since 1888 it has received the funds appropriated by Congress under the provisions of the Act commonly known as the "Hatch Act," approved March 2, 1887. The object and duty of Experiment Stations thus established in connection with the Agricultural Colleges of the country is stated in Section 2 of that Act as follows: "It shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analyses of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective States or Territories."

It is the wish of the Board of Control to make the Station as widely useful as its resources will admit. Every Vermont citizen who is concerned in agriculture, whether farmer, manufacturer or dealer, has a right to apply to the Station for any assistance that comes within its province to render, and the Station will respond so far as lies in its power. All communications relating to agriculture, horticulture, plant or animal diseases, insects, etc., are fairly considered, and, so far as possible, promptly answered.

The Station acts as a bureau of information upon matters of agricultural interest in a four-fold manner:

1. By the publication and distribution of the results of experiments in the form of bulletins and reports.
2. By articles appearing in the agricultural and general press.
3. By direct correspondence with individuals of all classes, particularly with farmers.
4. By the personal contact of members of the station staff with the farming community at institutes, fairs, by visits, etc.

The Station has issued since its establishment ten annual reports and fifty-nine bulletins. The publications of the past year have aggregated 372 pages of printed matter. The reports and bulletins of the Station are sent upon application, without charge, to any address.

STUDENTS OF MEDICINE

Arrangements are made between the Academic and Medical departments by which a candidate for the degree of A. B. or Ph. B. may count certain Medical studies of the first year as equivalents for part of his last year's Academical studies, and in this way may abridge by one year the time necessary for taking his degrees in both departments.

MILITARY INSTRUCTION

In accordance with an Act of Congress, an officer of the United States Army is stationed at the University as Professor of Military Science and Tactics, and male students in the departments of Arts and Sciences are required to take part in military drill and instruction three hours each week. A neat, inexpensive uniform is worn during drill.

The drills take place twice a week and are so conducted as to afford healthful exercise, which, while not severe, tends to develop an erect figure and carriage. A building 150 by 70 feet is used as an armory, and a course of military gymnastics is combined with the drills. The military discipline, though enforced only during the hours for drill, is designed to develop soldierly honor and those ideas of promptness, order and obedience to lawful authority which are applicable to all callings in life.

The theoretical instruction is given to each class once a week by recitations, lectures and practical work. It embraces, besides the Drill Regulations of the U. S. Army, the elementary principles which govern the art of war, such as officers of a volunteer army should be conversant with when first called into the field.

Students are marked as in other courses of instruction, and upon the graduation of each class, the names of those students who have shown especial aptitude for military service are reported to the United States War Department and to the Adjutant General of the State, and the names of the three most distinguished students in Military Science and Tactics are inserted in the United States Army Register.

MILITARY ORGANIZATION

The students are organized into a battalion, consisting of four companies. The officers are taken from the Senior class, the sergeants from the Junior class, and the corporals from the Sophomore class.

The following is the Roster of officers and non-commissioned officers for the present year :

MAJOR

Merton C. Robbins

CAPTAINS

- | | |
|----------------------|---------------------|
| 1. Perley O. Ray | 3. Harris H. Walker |
| 2. Julius S. Turrill | 4. Roy L. Patrick |

MILITARY ORGANIZATION

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FIRST LIEUTENANTS

- | | |
|------------------------------|--------------------|
| 1. John C. Torrey (Adjutant) | 3. Walter T. Mott |
| 2. William J. Russell | 4. William S. Bean |
| 5. Harry F. Perkins | |

SECOND LIEUTENANTS

- | | |
|--------------------------|--------------------|
| 1. Charles S. Van Patten | 3. Warner J. Morse |
| 2. Samuel W. Hamilton | 4. Louis C. Dodd |

SERGEANT MAJOR

Max W. Andrews

FIRST SERGEANTS

- | | |
|-------------------------|--------------------|
| 1. Clarence W. Richmond | 3. G. Jean Holden |
| 2. Wait C. Johnson | 4. Frank F. Finney |

SERGEANTS

- | | |
|-----------------------------------|-----------------------|
| 1. Warren R. Austin (band leader) | 7. George H. Burrows |
| 2. Charles H. Parker | 8. Robert A. Lawrence |
| 3. Edward C. Wright | 9. Ernest J. Ewing |
| 4. Charles A. Bigelow | 10. Harry W. Smith |
| 5. Samuel C. Dunlop | 11. Charles F. Blair |
| 6. Guy P. Lamson | 12. Charles I. Button |
| 13. Carl B. Brownell | |

CORPORALS

- | | |
|---------------------------|------------------------|
| 1. Royden E. Beebe | 9. Charles M. Sturgess |
| 2. James O. Walker | 10. Jesse W. Tobey |
| 3. Horatio N. Drury, jr., | 11. Charles A. Tracy |
| 4. James B. Porter | 12. Dell B. Allen |
| 5. Lyman Brooks | 13. Thomas R. Powell |
| 6. Delano E. Farr | 14. Napoleon A. Laury |
| 7. Glenn C. Gould | 15. Harry C. Libby |
| 8. Levi B. Lincoln | 16. Arthur S. Bean |

REGULATIONS

ABSENCES

1. The absences of students shall be in charge of a Committee of the Faculty.

2. Students in all departments of the University, with the exception of those in the Medical Department, are required to attend Prayers in the Chapel on all mornings when they have a college exercise the first hour.

3. Students not in their seats at Chapel when the bell ceases tolling will be marked absent.

4. A student's unexcused absences from Chapel exercises must not exceed twenty-five per cent. of the whole number of the exercises which he is obliged to attend under § 2. Such unexcused absences shall be treated as those specified in §§ 7 and 8.

5. Excuses for absence will in general be granted only for sickness, and for absence incurred by students who are obliged wholly or in part to support themselves, while actually engaged in work for such support.

6. The number of unexcused absences which are allowed in any subject during the half-year shall be the same as the number of exercises held weekly in that subject. Thus in a two-hour course, two absences will be allowed during the half-year; in a three-hour course, three absences, etc.

7. A student whose unexcused absences during a half-year exceed the number allowed in § 6 shall be placed on probation, and his parent or guardian shall be notified of his delinquency. A student who is placed on probation shall not be allowed to take part in the work of any students' organization, such as the Base Ball Nine, the Glee Club, etc. (also similar class organizations), nor shall he attend

the convention of any secret society or other organization meeting out of town. Probation in one study will deprive a student of unexcused absences in all other studies.

8. A student who, after being placed on probation, shall incur further unexcused absence from required exercises in the same study in which he has been delinquent, shall be suspended on vote of the Absence Committee for a period of not less than ten days. While under suspension a student, if he live away from Burlington, shall be required, in case the Absence Committee so direct, to return to his home. If his home be in Burlington, he shall be required to absent himself from the University grounds.

9. No student absent from an examination without leave shall be allowed to take a subsequent examination in that subject except by a special vote of the Faculty. Application for such leave of absence must be presented in writing to the Absence Committee previous to the examination.

10. No student may be absent from Burlington, when such absence involves failure to attend any required exercise, without the permission of the Absence Committee; and leave of absence for the purpose of attending the exercises of any students' organization must also be obtained beforehand from the Committee.

11. After a Recess, work will be resumed with the first afternoon exercise.

12. For one day before and after a Recess each absence shall count as two.

13. Excuses for absence must be put in writing, dated and signed, and deposited with the Secretary of the Absence Committee. Such excuses must be presented within two weeks after the absences were incurred, otherwise they will not be considered by the Committee. In case of sickness, the Committee may require the certificate of a physician.

No student will be permitted to join or continue as a member of any athletic, musical, or other similar college organization unless he

maintain a fair standing in all the studies of his course. The membership of such organizations shall be subject to the approval of the Committee on Studies.

ATHLETICS

1. No athletic contest shall take place before four o'clock in the afternoon on any day but Saturday.

2. All arrangements or schedules for contests to take place out of Burlington must be submitted for approval to the Athletic Committee.

3. No athletic organization shall be absent for more than three consecutive college days exclusive of Saturday.

4. At least two weeks before an intended contest, the manager of any athletic organization shall submit to the Athletic Committee for its approval a list of candidates for the team.

EXAMINATIONS

At the close of each half-year students are examined in the studies of that half-year. The examinations are written, or oral, or both, at the discretion of the instructor. A record is kept of the results of these examinations, and a transcript of each student's record is sent to his parent or guardian.

Any matriculant who fails in the regular examination in any subject, and fails also to pass a re-examination in that subject within one year, shall become a Special student and be so classed in the annual catalogue. A Special student may at any time be restored to regular standing by vote of the Faculty, upon his making up all back work and presenting satisfactory reasons for his failure to perform the work within the prescribed time.

In the case of Seniors all delinquencies up to the close of Junior year must be made up by the end of the first half of Senior year. Those who fail so to do shall thereupon cease to be candidates for a degree.

STANDARD RAISED

At the beginning of the year 1896-97 the standard of attainment necessary for passing an examination was raised from 50 per cent. to 60 per cent. Those whose scholarship exceeds the minimum pass-mark are grouped in four classes designated by A, B, C, and D, A being the highest. Those who fail to reach a standing of 60 per cent. are assigned to a group designated by x or X.

SPECIAL STUDENTS

All students who are not candidates for a degree are classed as Special Students.

Such students are required to submit their choice of studies to the Committee on Studies in the same manner as regular students.

Special students are not eligible to scholarships. They will be charged \$10 a half-year for each full course of study (3 hours or more), and \$5 for each half course (2 hours or less); \$5 for the use of the Library, and \$5 as Registration fee; but in no case shall a Special student be required to pay more than the full tuition fee. For Laboratory fees see Laboratory courses.

Those who fall into this class by delinquency, or by failure to meet in full the requirements of the curriculum, are subject to the same regulations as matriculate students.

Such students as pursue only a partial course of study may not become members of students' organizations except by vote of the Faculty. They are required to drill unless excused by the Faculty.

RELIGIOUS SERVICES

The institution, while not connected with any particular denominational body, and having members of many communions in its Board of Instruction, aims to impress religious truths and obligations upon all students. A responsive Religious Service is held every morning in the College Chapel, which the students are required to attend.

A flourishing Young Men's Christian Association of students is maintained, and is in close union both in sympathy and co-operative work with the Young Men's Christian Association of the city. The young women of the University also maintain a similar organization. The numerous churches of the place give to the students hospitable welcome to their services and activities. A voluntary Bible Class of students is conducted by the President on Sunday afternoons in the College building.

HONORS

Honors may be awarded at graduation for General High Standing in Scholarship, and also for conspicuous attainments in any one of the departments named below.

The candidate for Honors in general scholarship must have attained grade A in at least one-half of his work, grade B in at least one-half of the remainder, and have fallen below grade C in no department or subject.

Honors may be granted by the Faculty for unusual proficiency in any of the subjects following : Greek, Latin, French, German, English, History, Philosophy, Political Science, Mathematics, Biology, Chemistry, Physics, Mechanics, under these conditions : The candidate must have taken with credit the equivalent of six three-hour courses (i. e. eighteen lecture "hours" or "periods" extending through the year) in the subject offered, or in such cognate subjects as may have been designated or accepted by the Head of the department in which honors are sought. He must also have passed satisfactorily a special examination in such additional work as may have been accepted or assigned by the Instructor ; or have presented a satisfactory thesis on a subject previously approved ; or have fulfilled both these conditions, as the Instructor in charge of the department may determine.

Applicants for Honors in special fields must make application to the Faculty in writing not later than December 1 in their Senior year ;

and must present their theses and be ready for the special examination not later than May 10.

The Honors awarded at graduation shall be indicated on the Commencement program, and the graduate who wins this distinction shall have the words *cum laude*, *magna cum laude*, or *summa cum laude*, inscribed on his diploma, the special addition to be determined by vote of the Faculty.

On the morning of Commencement Day an Honor List shall be published, containing the names of all who have gained honors at graduation; of all who have won prizes during the year; of those who are appointed to speak at Commencement; and of such other graduates as may have presented essays or theses of conspicuous merit. This shall be posted on the official Bulletin Board and in the Library, and copies shall be placed on sale. This List shall also be printed in the next annual catalogue, with the names of the speakers on Founder's Day, and of those graduates whose proficiency in Military Art and Science has gained for them a recommendation to the Adjutant-General of the State and to the War Department of the United States.

DEGREES

For the degrees of Bachelor of Arts and Bachelor of Philosophy, see page 14.

DEGREES IN SCIENCE

The Degree of Bachelor of Science in *Civil Engineering*, or in *Electrical Engineering*, or in *Mechanical Engineering*, is conferred upon students in the department of Engineering, who shall complete the courses of study corresponding respectively to these titles.

The Degree of Bachelor of Science in *Chemistry*, is conferred upon the completion of the work required by the department of Chemistry.

The Degree of Civil Engineer may be conferred upon Bachelors of Science of this University, who have taken the Bachelor's degree for work in Civil Engineering, if they furnish satisfactory evidence

that they have pursued further technical studies for at least one year, and in addition have engaged in professional work in positions of responsibility for another year.

The first of the above requirements may be satisfied by pursuing at the University, under the direction of the Faculty, a prescribed amount of study for a time, not necessarily consecutive, equivalent to a college year. If the candidate does not reside at this University, his course of study must be approved in advance by the Professor of Civil Engineering, and he must prepare a satisfactory thesis on some engineering topic, to be presented together with a detailed account of his professional work one month at least before the date of the annual Commencement at which he expects to receive his degree.

The conditions upon which the Degrees of Electrical Engineer and Mechanical Engineer are conferred upon Bachelors of Science of this University, who have taken these degrees for work done in Electrical Engineering and Mechanical Engineering, are analogous in character and in amount to those given for the degree of Civil Engineer.

In the Department of Agriculture the degree is Bachelor of Science *in Agriculture*.

THE DEGREE OF MASTER OF ARTS

1. The degree of Master of Arts may be conferred upon resident graduates of one year's standing of this or any other reputable college, and upon non-resident graduates of two years' standing of this University, who shall pursue a course of liberal study (not professional) subject to the approval of the Faculty.

2. Candidates for the A. M. degree shall be required to present a thesis upon some branch of liberal study pursued since graduation, and to pass an examination before the Faculty.

3. The thesis must be presented at least two months before Commencement, and be approved before the candidate shall be admitted to examination.

4. The thesis must be written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of authors consulted. A copy of the same shall be deposited in the University Library.

5. The examination shall be both written and oral, and copies of examination papers shall be kept on file at the University Library. The examination shall be conducted by a committee of the Faculty, who shall appoint the time and place of examination, decide upon the merits of the candidate, and, if they deem him worthy, recommended him to the Trustees for graduation.

6. Resident graduates will be charged the same fees as undergraduates. See below.

Students who are not candidates for a degree may be awarded Certificates of Proficiency in recognition of the work which they have done.

EXPENSES

The Tuition Fee is \$60 per annum, one-half, \$30, payable at the close of each half-year.

An annual Fee of \$20 for incidental expenses is charged against all students, one-half payable at the close of each half-year.

This fee is a commutation sum for charges formerly made under several headings, and *does not include charges for breakages, damages, etc.*, which are assessed upon the perpetrators, or, when they are unknown, upon the whole body of students.

Every student upon entering the University is required to pay a Registration Fee of \$10. The payment of this completes the requirements for admission, and is in lieu of the first half-yearly installment of the annual fee.

All students pursuing Laboratory courses are required to pay for material and breakage. This fee varies, but has averaged in the department of Chemistry \$15 besides breakage, in that of Mineralogy

\$5, and in that of Mechanics \$5, for the half-year. Each must pay for his own breakage.

Each student pays an annual fee of \$2 for supplying the Reading Room with periodicals.

An ordinary Scholarship cancels the amount of the tuition fee, and a State Scholarship both the tuition and the annual fees. But no student shall have his scholarship credited upon his bills while his college work is in arrears or while any charges stand against him on the Treasurer's books.

A fee of \$8 is charged for the Diploma given at graduation, and a fee of \$5 for a Certificate of Proficiency.

PAYMENT OF BILLS

Interest at the rate of six per cent. will be charged upon all bills from the day on which they are due. No student will be advanced from class to class, or admitted to graduation, until all arrearages are settled to the satisfaction of the Treasurer.

Students temporarily absent from the University are charged as if present. Students entering an advanced class are required to pay one-half of the back tuition, unless from another college.

ROOMS AND ROOM RENT

Room rent in the old College dormitories ranges from \$15 to \$37.50 per year, according to the location of the room and the number of the occupants. This does not include fuel and lights.

The students' rooms are furnished at the expense of the University. Students need to provide only carpets, mattresses, bed clothing and chamber ware. The beds are furnished with wire mattresses. All rents include care of room by college servants.

THE CONVERSE HALL

The Converse Hall, completed in the year 1895, is an elegant and substantial four-story edifice in the collegiate-gothic style, built of

Rutland marble, furnishing handsome suites (single and double) for about ninety students. It is heated by steam, finished throughout in hard wood and supplied with all necessary furniture in oak. There is a fireplace in each study and all the rooms can be lighted by electricity. Each of the three sections is supplied with bathing facilities, and one of them contains a Common Room for general uses. Besides the furniture supplied in the old dormitories, the bedrooms here are furnished with hair mattresses, bolster, pillow and blankets. Rents for single suites range from \$15.00 to \$80.00 ; for double suites, from \$35.00 to \$70.00 for each occupant. All rooms are cared for by college servants.

The fine old mansion on Main street, lately occupied by Mr. Lawrence Barnes, and formerly by Gov. Van Ness, has been purchased and fitted up for the use of the young women students. It is surrounded by ample grounds and commands a delightful prospect. The household is under the supervision of a matron and a housekeeper.

Good board with room may be obtained in private families at \$3.50 to \$5.00 a week. Other expenses, for clothing, traveling, books, stationery, society and class taxes, etc., vary with the circumstances and habits of the student.

The Central Vermont and Rutland railroads and the Champlain Transportation Company carry students for fare at mileage rates.

THE WILLIAMS SCIENCE HALL

completed in 1896, is a fire-proof structure of granite, brick, steel and artificial stone, with rich terra cotta decoration. It is of three stories, with a well lighted attic available for laboratory work, and a basement also adapted to the uses of the Scientific departments. It is supplied with the latest and best devices for heating and ventilation and for practical laboratory work, and is occupied by the Chemical, Physical, Electrical and Biological sections of the University.

BOARDING HALL

There is a Commons Hall on the College grounds at which good table board is furnished to students at cost. The rate of board at present is \$2.75 per week, or \$2.50 if paid in advance.

SCHOLARSHIPS

Scholarships, affording aid to students of limited means to the amount of tuition, have been endowed as follows :

The Washburn Scholarships, twelve in number, by Daniel Washburn, M. D., of Stowe, for the benefit of young men studying for the Christian ministry, or, in default of such applicants, of other deserving young men.

The Louisa H. Howard Scholarships, seven in number, by Miss Louisa H. Howard of Burlington.

The Sarah B. Jacobs Scholarships, seven in number, by Mrs. Sarah B. Jacobs, of Boston, for the benefit of graduates of Brigham Academy, at Bakersfield, Vt.

The Bertman Scholarship, by John Bertman, Esq., of Salem, Mass.

The Green Scholarship, by Horace Green, LL. D., of New York city.

The Fairbanks Scholarship, by the Hon. Erastus Fairbanks, of St. Johnsbury.

The Parker Scholarship, by the Rev. Charles C. Parker, D. D., '41, in memory of himself and son, Charles Edmund Parker, '67.

The Westford Scholarship, by the Hon. L. P. Poland, LL. D., of St. Johnsbury.

The Converse Scholarship, by John H. Converse, '61, of Philadelphia.

The Edwin Wright Marsh Scholarship, endowed by Charles P. Marsh, Esq., '39, of Woodstock, in memory of his son, of the class of 1872, for the benefit, in the first instance, of students from the town of Weathersfield, Vt.

The Charles Munson Marsh Scholarship, by the same, available first for students from Woodstock, if such apply.

The Charles P. Marsh Scholarships, five in number, available first for needy and worthy young men or women from the County of Windsor.

The Lizzie S. Converse Scholarship, by bequest of Miss Lizzie S. Converse of Burlington, for poor and deserving students in the Classical department.

The Rich Scholarship, by Charles W. Rich, Esq., '36, of St. Albans.

The Rich Scholarship, by the same, for the benefit, first, of students from the town of Swanton, Vt.

The Isle LaMotte Scholarship, by N. S. Hill, Esq., of Burlington, for the benefit of students from Isle LaMotte, and failing such, from Craftsbury.

The Shaw Scholarship, by the Hon. William G. Shaw, of Burlington, of the class of '49.

The Class of '61 Scholarship, endowed and made available in 1891.

Appointments are made to these scholarships by the Faculty from term to term, and are conditioned on the attainment of a certain grade of scholarship and on exemplary conduct. The benefit of a scholarship is forfeited and back tuition becomes due, if a student abandons his course unnecessarily, or to join another college.

The endowment of additional scholarships would enable the University to extend its benefits to those who could not otherwise afford the expense of a four years' maintenance in College. The minimum endowment is one thousand dollars. The annual payment of \$60 relieves one student from the payment of tuition alone; of \$80, from the payment of tuition and annual fees.

STATE SCHOLARSHIPS

Thirty State Scholarships, covering tuition and incidental expenses in the Classical or Scientific departments, are now available.

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STATE SCHOLARSHIPS

Thirty State Scholarships, covering tuition and incidental expenses in the Classical or Scientific departments, are now available.

Nomination to these scholarships rests with the senators from the several counties, to whom application should be made.

THE JEDEVINE FUND

now available in part, is loaned in small sums to "poor and deserving students" in the Classical and Scientific departments, who are residents of Vermont. The loans must be well secured, and must be repaid within a specified time after the student leaves college. Applications may be made to the Treasurer of the University.

PRIZES

PRIZE FOR PROGRESS

A prizes of \$25 will be awarded to the student who, in the judgment of the Faculty, is entitled to the greatest credit for effort and attainments in his studies upon completion of the Junior year.

PRIZES FOR ELOCUTION

Prizes of \$25, \$15 and \$10 are offered to members of the Sophomore and Freshman classes for the best declamation of passages in oratorical prose.

THE READING PRIZE FOR YOUNG WOMEN

Prizes of \$25, \$15 and \$10 are offered for excellence in reading by young women of the University.

THE PHELPS PRIZE

A prize of \$50 in gold, endowed in memory of the late Edward Haight Phelps, C. E., class of 1872, will be awarded by the Faculty each year at commencement to a graduate of that year in Civil Engineering who shall have exhibited conspicuous merit in professional studies, and high and noble traits of personal character. A special

certificate will accompany the prize, indicating the conditions upon which it has been awarded. In case no award shall be made in any year, the same amount of money will be expended in the purchase of books on the subject of Civil Engineering for the use of the department.

HOWARD PRIZES

Mrs. Hannah T. Howard of Burlington, left by will \$1,200, the income of which is to be awarded in prizes.

From the income of the above fund, three prizes of \$25 each will be awarded in 1898, to candidates for admission to the Freshman Class who shall pass the best entrance examinations in Greek, in Latin and in Mathematics.

THE LIBRARY

The Library of the University, selected with special reference to the several departments of study, contains 39,550 volumes, besides the 12,507 volumes that form the library of the late Hon. George P. Marsh, a collection of the highest value in the departments of Philology, European Literature and History, and Physical Geography. This collection is the gift of the late Hon. Frederick Billings of Woodstock, and is deposited in a room especially provided and elegantly appointed to receive it. The whole library has been carefully arranged by subjects, on the Dewey system, with accession and shelf catalogues. A card catalogue on the dictionary plan is in progress, being already complete for the subjects, Literature, Philology, History, Philosophy, Religion, Natural Science and portions of Sociology, Industrial Arts and Fine Art. A full catalogue of the Marsh collection, by authors and subjects, has been published.

The beautiful and commodious Billings Library, erected at a cost exceeding \$150,000, with a shelving capacity of 100,000 volumes, con-

tains the general library of the University and the special collections. The apse, originally designed for the Marsh collection, has been appropriated to the use of the Reference Library and Reading Room.

The income from the bequest of Miss Maria Loomis of Burlington, of the sum of \$10,000, has become available for the purchase of books. The income from the various funds available for the increase of the Library amounts to something over \$1,000 a year.

Since the last Catalogue was issued 1,125 volumes have been added to the Accession list.

The Library is open during term time from 8:30 A. M. to 12:30 P. M., and from 2 to 6 P. M. on week days for consultation and drawing books, and for reading and reference on Sunday afternoons from 2 to 4 P. M., and every week day in vacation from 9 A. M. to 12 M., and from 2 to 4 P. M. The Reading Room of the Library is supplied with the leading scientific and literary periodicals. Persons not connected with the University have free use of the Library for consultation, and on special permission from the President or Librarian, are allowed to draw books. Students have also the use of the Fletcher Free Library, a collection of 25,000 volumes, for loan and reference, which is open daily.

Of the many individual donors to the Library during the past year there is special reason to name the following:

Rev. S. L. Bates 1857, Hon. G. G. Benedict 1847, R. D. Benedict, LL. D., 1848, Mrs. Frederick Billings, Thomas H. Canfield 1896, Hon. L. E. Chittenden, John H. Converse 1861, Hon. S. A. Green, M. D., Gen. Rush C. Hawkins, G. F. Herrick, D. D., 1856, L. C. Herrick, M. D. 1864, Mrs. J. W. Hickok, Hon. H. W. Hill 1876, Hon. J. S. Morrill, LL. D., F. W. Page, M. D., 1864, Hon. E. J. Phelps, Mrs. Mary M. Tuttle, Prof. J. R. Wheeler 1880, Robert C. Winthrop, Jr., Mrs. J. H. Worcester.

General Hawkins' latest gift to the Library, just received, embraces these five imperial folios:

Translatio Syra Pescitto Veteris Testamenti ex Codice Ambrosiano sec. fere VI. 2 vols.

Codex Syro-Hexaplaris Ambrosianus.

Iliadis Fragmenta Antiquissima cum Picturis, item Scholia Vetera ad Odysseam.


Il Rotolo Opistografo del Principe Antonio Pio di Savoia.

Of the first named there are three other copies in this country ; of the second, two; of the third and fourth, only those named above. Of the value of these volumes—the first three, lithographic reproductions of unique and priceless MSS—this is not the place to speak.

A special interest attaches to a very neat collection of the several issues of U. S. fractional currency, with specimens of Confederate, old Federal, and Vermont issues, made by Francis W. Hickok, who entered the University in 1865, but from ill health was unable to complete the course. The collection is the gift—in memoriam—of his mother and sister, Mrs. Julia Francis Hickok and Miss Mary M. Hickok.

The Library Committee solicits gifts of books and pamphlets relating to Vermont History and the lives of natives of Vermont ; also of copies of all books written by Vermonters, or published in the State, and of files of State papers, especially of the first half of this century, or earlier.

The Committee desires also to collect all books, essays, pamphlets, etc., written by Officers or Alumni of the University, and would esteem it a great favor if such writings should be sent to the Library for permanent preservation.

 *Of the Annual Catalogues of the University supposed to have been issued from 1810 to 1833, inclusive, the Library possesses only those of 1822, 1823 and March, 1825. The alumni and other friends are earnestly requested to help in completing our file.*

THE MUSEUM

The various collections exhibited in the Museum building, though primarily gathered and arranged with reference to study and for illustrating lectures, are of general interest. The rooms are accessible to the public on week days from 9 A. M. until 5 P. M. For the general guidance of visitors the following outline of the arrangement of the specimens is given:

On the first floor is the Mineralogical collection, which contains several thousand specimens representing nearly all the species mentioned in the manuals. Some of the specimens are unusually fine, notably a splendid series of Sicilian sulphurs, celestes and associated minerals collected by the Hon. Geo. P. Marsh, and a number of Hartz Mountains and other European minerals collected by the Rev. Edward Hungertord. There is also an extensive series of the rocks of Europe and a very complete set of the lavas of Vesuvius, the gift of Mr. Hungerford. A nearly complete set of the rocks and marbles of Vermont and several hundred specimens of foreign marbles are also placed in this room, though only a part can be shown for lack of space. Besides foreign birds and mammals, there is a nearly complete representation of the mammals, birds and fishes native to this State, and an alcoholic collection of the reptiles and fishes of the United States. There is a smaller collection of mounted skeletons of vertebrates and numerous crania and other bones, including a perfect lower jaw of the sperm whale. The nests and eggs of many of the birds common in Vermont have been obtained and most of them are arranged in cases. On this floor is a fine bas relief, dating from about 875 B. C., taken from one of the palaces at Nimroud, the gift of Mr. John H. Converse.

On the second floor of the Museum building is a large collection of shells made up of selections from the original Museum collections and from those of the Hon. L. E. Chittenden and Prof. G. W. Benedict, which were given to the Museum a few years ago. To these the fine collection of Dr. William C. Hickok has recently been

added. Smaller but good collections of corals, echinoderms and sponges occupy cases near the shells. Of these the living forms are in many cases shown by the beautiful Blaschka glass models. The wall cases on this floor contain the collection of fossils. This is primarily intended to illustrate the geology of Vermont and all the horizons found in the State are well represented, but all the epochs recognized in the manuals are more or less fully represented by specimens from various American and European localities. Several important additions to this part of the Museum have been made during the past few years. Besides several hundred specimens of coal plants from the Carboniferous of Pennsylvania and Illinois, a considerable series of plant fossils have been obtained from the Cretaceous and Tertiary of the West. There has also been recently added a small, but valuable, collection of skulls and other parts of the skeletons of Vertebrates from the western Tertiary, including some very fine specimens of fishes from the Wyoming Green River shales.

The Archæological collections include the largest and by far the most important series of objects illustrating the prehistoric times of Vermont that has been brought together. There are several thousand specimens of the work of the former occupants of the Champlain Valley in stone, bone, copper, shell and earthenware, some of them very rude, others as finely formed and perfectly finished as the best from other parts of the United States. Smaller, but not unimportant, collections from the Ohio and Mississippi Valleys and from the Pacific coast are also displayed.

The pottery of the mound-builders and of ancient and modern Pueblo tribes is represented by numerous examples and a very interesting collection consisting of several hundred jars, dishes and vases, stone and bone implements, basket work, bits of cloth, skulls, etc., etc., from cliff houses in Mancos Cañon, Colorado, has just been placed in cases. There are a few specimens of stone and pottery from Mexico and a much greater number from pre-Columbian graves in Nicaragua.

The Ethnological collection is constantly becoming of greater interest and value. It is placed in a room by itself recently added to

the main building. There are small, but, in some cases at least, very choice, collections of the weapons, implements and ornaments of the natives of Australia, Polynesia, Africa and Oriental countries. The very fine Reed collection of objects collected among the Sioux Indians is of special interest, and similar specimens from the southern tribes are also exhibited.

In addition to the collections already mentioned there is a large herbarium containing a complete series of Vermont plants as well as thousands of specimens from other parts of the United States and foreign lands. This is placed in a room specially prepared for it in the Williams Science Hall. There are also collections of native and foreign woods, of fruits and seeds, with several thousand specimens of insects, chiefly from New England and the northern United States, and a good collection of Greek, Roman and modern coins. These latter collections are none of them located in the Museum building, but may be examined upon application to the Curator.

THE CANNON COLLECTION

The collection of Oriental objects obtained in India by the late Henry LeGrand Cannon and by him bequeathed to the University, has now been received from his executors, and is displayed in a room added to the Museum by special provision of the donor.

The Collection includes fabrics and draperies, many of them exquisitely embroidered; bronze and porcelain lamps; chairs, stand, and screen of teak-wood elaborately carved; numerous articles of silver, chiefly ornamental; musical instruments; household articles of brass and iron, and other objects which cannot be catalogued here; armor, Indian, Persian and Japanese, some of it elegantly wrought with inlays of gold and silver; various articles of Thibetan origin, a shrine, prayer-wheel, amulets, etc., with fine specimens of European arms of the 15th and 16th centuries.

Should visitors find the Museum building closed, a key may be obtained at the Library.

THE PARK GALLERY OF ART

TRUSTEES

PRES. M. H. BUCKHAM, *President ex-officio*

PROF. H. A. P. TORREY, *Secretary*

HON. F. C. KENNEDY, *Treasurer*

HON. G. G. BENEDICT

COL. LEGRAND B. CANNON

HON. E. J. PHELPS

It is the aim of the Trustees of the Art Gallery to gather into a small but good collection, such works of art, paintings, engravings, models, casts, photographs, etc., as will serve to illustrate the history and the principles of both ancient and modern art. The nucleus of such a collection has already been secured. Contributions are solicited in any of the following classes, or funds for the purchase of the same :

1. Paintings—not copies—by either American or foreign painters.
2. Works of Sculpture : statues, busts, reliefs, medallions, whether originals or copies made under the eye of the sculptor.
3. Original drawings.
4. Casts from noted sculptures. These are especially valuable in art studies and are comparatively inexpensive.
5. Bronzes, terra cottas, enamels, faiences, ancient vases, works in metal and glass, tapestries, etc., in which the artistic merit is conspicuous.
6. Valuable engravings, wood-cuts and etchings.
7. Photographs from originals of the great masters in painting, and from the best works in sculpture and architecture.
8. Works on art, biographies, dictionaries, criticism, etc. The names of donors will be inscribed on works of art presented to the gallery.

AMERICAN SCHOOL OF CLASSICAL STUDIES

Through the generosity of several of the Alumni and other friends, the University was enabled, a few years ago, to join the league of Colleges and Universities that maintain the *American School of Classical Studies in Athens*, an institution which has as its object the study of Classical Archaeology, and the training of Classical teachers. The University retains its membership in this league through the generous contributions of the following Alumni and other friends :

R. D. Benedict, '48
Charles A. Catlin, '73
John H. Converse, '61
John H. Denison, '77
John Dewey, '79
E. N. Foss
Lewis Francis, '56
Horatio Hickok
George E. Howes
S. W. Landon, '74
Philo F. Leavens, '61
Hamilton S. Peck, '70

E. Henry Powell
A. E. Richardson
Robert Roberts, '69
F. A. Richardson, '95
Kirby F. Smith, '84
Mason S. Stone, '83
E. B. Taft, '71
W. J. Van Patten
Frank R. Wells, '93
J. R. Wheeler '80
Norman Williams, '55

DEPARTMENT OF MEDICINE

FACULTY

MATTHEW HENRY BUCKHAM, D. D.,
President.

JOHN ORDRONAU, M. D., LL. D.,
Emeritus Professor of Medical Jurisprudence.

JOEL WILLISTON WRIGHT, A. M., M. D.,
Emeritus Professor of the Principles and Practice of Surgery.

ALBERT FREEMAN AFRICANUS KING, A. M., M. D.,
Professor of Obstetrics and Diseases of Women.

ASHBEL PARMELEE GRINNELL, A. M., M. D.,
Dean of the Faculty; Professor of the Theory and Practice of Medicine; Consulting Physician to the Mary Fletcher Hospital and to the Fanny Allen Hospital.

RUDOLPH AUGUST WITTHAUS, A. M., M. D.,
Professor of Chemistry and Toxicology.

JOHN HENRY JACKSON, A. M., M. D.,
Professor of Physiology and Microscopic Anatomy.

ABEL MIX PHELPS, M. D.,
Professor of Surgery; Consulting Physician to the Mary Fletcher Hospital; Surgeon to the Charity Hospital, N. Y. City.

HENRY CRAIN TINKHAM, M. D.,
Professor of General and Special Anatomy; Attending Surgeon to the Mary Fletcher Hospital.

JAMES NATHANIEL JENNE, M. D.,
Professor of Materia Medica and Therapeutics.

JOHN BROOKS WHEELER, A. B., M. D.,
Adjunct Professor of Surgery; Professor of Clinical and Minor Surgery; Attending Surgeon to the Mary Fletcher Hospital; Consulting Surgeon to the Fanny Allen Hospital.

CHARLES SMITH BOYNTON, A. M., M. D.,
Adjunct Professor of Chemistry.

PATRICK EUGENE MCSWEENEY, M. D.,
Adjunct Professor of Obstetrics; Attending Physician to the Mary Fletcher Hospital and the Fanny Allen Hospital.

FREDERICK RUPERT STODDARD, M. D.,
Adjunct Professor of Materia Medica.

HARRIS RALPH WATKINS, A. B., M. D.,
Demonstrator of Anatomy; Attending Physician to the Mary Fletcher Hospital.

EVERARD ALLEN WILSON, M. D.,
Assistant Demonstrator of Anatomy.

LYMAN ALLEN, A. B., M. D.,
Instructor in Physiology.

FREDERICK W. BAYLIES, M. D.,
Instructor in Chemistry.

PROFESSORS OF SPECIAL SUBJECTS

JULIUS HAYDEN WOODWARD, B. S., M. D.,
Professor of Diseases of the Eye, Ear and Throat; Ophthalmologist to the Mary Fletcher Hospital.

[The lectures on Diseases of the Throat will be given this year [1896] by Mark C. Twitchell, M. D., of Burlington.]

GREAME M. HAMMOND, M. D.,
Professor of Diseases of the Nervous System.

A. PALMER DUDLEY, M. D.,
Professor of Surgical Diseases of Women.

JOSEPH HATCH LINSLEY, M. D.,
Professor of Pathology and Bacteriology; Laboratory Instructor in Physiology; Pathologist to the Fanny Allen Hospital.

JAMES RAYNOR HAYDEN, M. D.,

Professor of Genito-Urinary and Venereal Diseases ; Visiting Surgeon to City Hospital, Blackwell's Island.

FRANK WILFRED PAGE, A. M., M. D.,

Professor of Diseases of the Mind ; Superintendent of the Vermont State Asylum.

DILLON BROWN, A. M., M. D.,

Professor of Diseases of Children.

JUDSON EARL CUSHMAN,

Professor of Medical Jurisprudence.

GEORGE T. JACKSON, A. M., M. D.,

Professor of Dermatology.

ANNOUNCEMENT, 1898

The Medical Faculty of the University was not fully organized until 1822, in the fall of which year was given the first full course of medical lectures. Twelve successive classes were graduated in the years 1823-34. Medical instruction was then suspended until the reorganization of the faculty in 1854.

The forty-fifth annual course of lectures will begin Thursday, January 6, 1898, and continue till June 30. With this session the school inaugurates the *four-year system of graded study* as a requisite for graduation, due notice of which was given in the last annual circular. To carry out this plan a new lecture room for recitations has been fitted up, laboratories and apparatus improved, and additional instructors secured.

The Medical College Building, given to the University by the late John P. Howard, is a substantial brick edifice, on the north side of the College Park. The lecture-room amphitheatre will seat comfortably three hundred and fifty students.

The laboratories for Practical Chemistry, Physiology, Histology and Bacteriology, and the Dissecting Room for Practical Anatomy,

are ample in size, and supplied with the modern conveniences and apparatus required for chemical experiments and physiological and anatomical demonstration.

The Museum of the College is spacious, well lighted, contains a large and carefully arranged collection of specimens and preparations—many of them rare—illustrating both normal and abnormal structures. The Museum is always open to students.

During his four years' study the student will receive instruction in the following branches: Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice, Obstetrics, Surgery, Diseases of Children, Ophthalmology and Otology, Pathology and Bacteriology, Neurology, Diseases of the Mind, Hygiene, Medical Jurisprudence, Venereal Diseases, Dermatology, Laryngology, and Gynecology. This instruction is given by scholastic and clinical lectures, and by demonstrations. The curriculum includes laboratory courses in Urinary Analysis, Histology, Pathology and Bacteriology, and practical work in Physical Diagnosis, Surgery and Demonstrative Obstetrics, each student being *required* to take all these courses, unless he present evidence of having taken the same in some other recognized institution. (See requirements for graduation, page 98).

REQUIREMENTS FOR ENTRANCE

Applicants will be required to pass an Entrance Examination in *Arithmetic, Grammar, Geography, Orthography, American History, English Composition* and *Elementary Physics*, before they may be regularly enrolled as students in good standing in this department. But applicants who may have failed in one or more branches at these examinations may be enrolled as *conditioned* students; they must make up the deficiency however during the first year, before they can be enrolled as students in regular standing.

EXCEPTIONS:—Such entrance examination *will not be required* of applicants of any of the following classes:

1. Those who declare themselves *in writing* not to be candidates for the Degree in Medicine from this College.

2. Those who have received the Bachelor's Degree from a College or University which maintains a satisfactory academic standard.

3. Those who have passed satisfactorily the entrance examination to the Academic Department of any College or University which maintains a satisfactory academic standard.

4. These who have passed the entrance examination to a Medical school having requirements for entrance equivalent to those adopted by this Faculty.

5. Those who have received a Medical Student's Certificate from the Regents of the State of New York, or from any similarly constituted authority in other States.

6. Those who have received a Diploma or a Certificate for any ten studies from the Regents of the State of New York, or from any similarly constituted authority in other States.

7. Those who have satisfactorily completed a three years' course in a High School, Normal School or Academy.

Examinations for entrance will be held January 24 to 28, March 21 to 25, and June 13 to 17, 1898. Detailed information in regard to examinations will be found in the special Announcement of this Department.

CLINICAL ADVANTAGES

The Mary Fletcher Hospital, erected and endowed solely by the generosity of the lady whose honored name it bears, was opened in 1876 for the treatment of patients. Additions and improvements have been made from year to year, until now it is unrivalled in its appointments for the care of medical and surgical cases.

The Hospital consists of a large and elegant administrative building with many rooms for private patients, and two ample pavilion wards. In a separate building connected with the wards and admin-

istrative building by a corridor is a large amphitheatre capable of seating two hundred persons. There are also an anæsthetizing and a recovery room opening into the amphitheatre. Rooms for out-patients are also attached to the building. In fact every arrangement for Clinical Instruction is provided. Medical and Surgical Clinics will be held in the amphitheatre during the entire session.

REQUIREMENTS FOR GRADUATION

Four full courses of lectures of at least twenty weeks each will be required of all students who matriculate subsequent to July, 1897; those who matriculated before this time will be required to attend *three* full courses, according to the regulations in force before the four-year system was adopted.

No period of practice will be taken as the equivalent of any lecture course.

No candidate shall be admitted to an examination until his college fees are paid in full.

Candidates for the degree of Doctor of Medicine, before presenting themselves for examination, must have attended at least four full courses of lectures of twenty weeks' duration each, the last at this College. The candidate must have studied medicine four years, must have attained the age of twenty-one years, and must present full certificates of the time of his study, of age and of moral character. Each candidate is required to deposit his examination fee with the Secretary of the Faculty one month before the close of the session.

Before presenting himself for examination, and in addition to attendance upon the regular lectures, both scholastic and clinical, it is further required that he shall have pursued the study of Practical Anatomy, by dissection, under the guidance of a demonstrator; that he shall have taken at least one course of laboratory instruction in Urinary Analysis, in Histology, in Pathology and Bacteriology; and one course of practical work in Physical Diagnosis, Practical Surgery

and Demonstrative Obstetrics, either in this or in some other regular Medical College.

He must also pass a satisfactory written or oral examination before the Medical Faculty and Board of Medical Examiners appointed by the State Medical Society. No thesis is required.

The tickets and diplomas of Eclectic and Homœopathic, or Botanic Colleges, or the Colleges devoted to any special system of medicine, are considered irregular, and will not be recognized under any circumstances. Certificates from preceptors who practice any particular system of medicine, or who violate in any way the Code of Ethics adopted by the profession, will not be accepted under any circumstances, even if the preceptors be regular graduates in medicine.

Graduates of other regular Medical Colleges who desire a degree from this University, must pass a satisfactory examination in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice of Medicine, Surgery and Obstetrics.

No credit in time or in lectures shall be given any student by virtue of his degree in Pharmacy, Dentistry, or Veterinary Surgery.

Degrees *in absentia* are not conferred by this University under any circumstances whatever.

EXAMINATIONS

Students who matriculated under the three-year system (prior to July, 1897), may, after having attended two full courses of lectures *in all departments taught in this College*, be examined upon the four Primary Branches of Anatomy, Physiology, Chemistry and Materia Medica, at the end of their *second* course, and if successful in these examinations, they will be examined at the end of their *third* course upon the Final Branches of Practice, Surgery and Obstetrics. Candidates for the primary examinations will be required to pay three-fifths of the examination fee; the certificate of age, moral character and term of study, and the remainder of the examination fee must

be handed to the Secretary at the regular time before the final examination.

All examinations are held at the close of the regular session only.

Certificates of having passed in any branch or branches in other colleges will not be accepted by this college.

Students matriculating after July, 1897, will be examined at the close of each college session.

FACULTY PRIZES

The Faculty have established two Prizes for general proficiency in examination—a First Prize of Fifty Dollars, and a Second Prize of Twenty-five Dollars. The prizes will be awarded as follows :

The ten students who pass the best examinations for their degree will be allowed to compete in a written examination for the prizes ; of this number, the five who rank highest shall be called Honor Men, and will each receive a *Special Diploma of Honor*, and of these last, those who are deemed worthy shall receive respectively the first and second prizes.

The Honor Men of 1897 were: John Patrick James Cummings, A. B., John Henry Blodgett, Ph. B., Alfred Merriman Rowley, Albert Andrews Wheelock, and Rev. George Arthur Huntley.

The First Prize was awarded to John P. J. Cummings, A. B ; the Second Prize to John H. Blodgett, Ph. B.

FEES

Matriculation Fee, payable each term.....	\$ 5 00
Full Course of Lectures, each year.....	100 00
Single Ticket, for those who wish to take one or more subjects and not the whole course.....	20 00
Fee for graduation, payable once and not returnable.....	25 00

Graduates of other regular Medical Schools are admitted on payment of the matriculation fee and \$25.00.

Graduates of this school are admitted without fee.

Theological students are admitted on payment of the matriculation fee only, unless intending to graduate in medicine, in which case they will be required to conform to the above conditions.

All fees must be paid to the Secretary, and are payable in advance.

BOARD may be obtained for from \$3.50 to \$5.00 per week. Good accommodations can be found for students who wish to board themselves. Many adopt this method at a great reduction in expense. Students who intend to board themselves will find such bedding and culinary articles as they may require furnished with the rooms.

After registering, every student is furnished with a certificate entitling him to reduced rates on railroad and steamboat lines running into Burlington.

For further particulars address the Secretary,

or A. P. GRINNELL, M. D.,
Dean.

B. J. ANDREWS, M. D.,
Mary Fletcher Hospital,
BURLINGTON, VT.

STUDENTS

GRADUATE STUDENT

NAME	RESIDENCE	ROOM
William Allen Orton, B.S. 1897	<i>Fairfax</i>	16 Exp. Station
German, Botany and Horticulture.		

SENIOR CLASS

William Silas Bean	LS <i>Newport</i>	22 S. C. H.
Ernest Hyde Bell	CE <i>St. Albans</i>	41 M. C. H.
Floy Edson Booth	Ch <i>Swanton</i>	109 Elmwood
William Henry Burt	Cl <i>Taunton, Mass.</i>	9 S. C.
Charles Ernest Canfield	EE <i>Arlington</i>	20 S. C.
Albert Loomis Clark	Ch <i>Georgia</i>	4 S. C.
Anna May Clark	LS <i>Brookfield</i>	483 Main
Vinton Albert Clark	Ag <i>Burlington</i>	12 Exp. Station
James Ora Coddling	Cl <i>Westminster West</i>	4 N. C.
Carrie Esther Deavitt	Cl <i>Montpelier</i>	63 S. Willard
Louis Collins Dodd	Ch <i>Buffalo, N. Y.</i>	349 College
Lewis Walbridge English	Ag <i>Woodstock</i>	11 Exp. Station
William James Forbes	LS <i>Fairhaven</i>	349 College
Samuel Warren Hamilton	Cl <i>Rutland</i>	42 S. C. H.
Helen Grace Hendee	LS <i>Brandon</i>	150 Bank
Edward Elisha Herrick, B. S.	Cl <i>Milton</i>	35 Colchester
Carlton Dexter Howe	Cl <i>Newfane</i>	6 N. C.
Clifton Durant Howe	Cl <i>Newfane</i>	6 N. C.
George Campbell Hubbard	Ag <i>Springfield</i>	16 Exp. Station
Samuel Hollister Jackson	Cl <i>Barre</i>	73 Church
Peer Prescott Johnson	Cl <i>Burlington</i>	29 Mansfield

N. B.—N. C., S. C., M. C., stand respectively for North, South and Middle College. N. C. H., S. C. H., M. C. H., for North, South and Middle Converse Hall.

STUDENTS

103

Nelson Bertrand Keeler	EE	<i>Hyde Park</i>	349 College
Fred Halsey Larabee	Cl	<i>Craftsbury</i>	194 S. Prospect
William Barry Leavens	Cl	<i>Passaic, N. J.</i>	31 S. C. H.
Abbie Katharine Leonard	Cl	<i>Grafton</i>	411 Main
Elwyn Nehemiah Lovewell	LS	<i>Burlington</i>	13 N. C.
Albert Fay Lowell	Cl	<i>Burlington</i>	49 Mansfield
Edward R. Mack	ME	<i>Hardwick</i>	10 N. C.
Ida Maud Miles	Cl	<i>Barton</i>	411 Main
Mabel Augusta Miles	Cl	<i>Barton</i>	411 Main
Margaret Alice Millham	LS	<i>Williston</i>	229 Colchester
Warner Jackson Morse	Ag	<i>Waterbury Centre</i>	15 Exp. Station
Walter Towne Mott	LS	<i>St. Albans</i>	45 S. C. H.
Clarence Elbert Noyes	LS	<i>Castleton</i>	7 S. C.
Roy Leonard Patrick	LS	<i>Burlington</i>	41 S. Willard
Henry Farnham Perkins	Cl	<i>Burlington</i>	205 S. Prospect
William Comstock Perry	Ag	<i>Rowayton, Conn.</i>	1 N. C.
Herbert Leon Priest	Ag	<i>Plymouth</i>	232 College
Perley Orman Ray	Cl	<i>Burlington</i>	108 N. Winooski
Charles Stewart Raymond	ME	<i>Ludlow</i>	2 Colchester
Merton Covey Robbins	CE	<i>Brattleboro</i>	35 N. C. H.
William Julius Russell	Cl	<i>Burlington</i>	386 S. Union
Marian Brigham Rustedt	LS	<i>Richford</i>	411 Main
Duncan Stuart	Ag	<i>Burlington</i>	15 Exp. Station
Russell Wales Taft	Cl	<i>Burlington</i>	291 S. Union
John Cutler Torrey	Cl	<i>Burlington</i>	75 S. Prospect
Julius Spear Turrill	Cl	<i>Burlington</i>	258 S. Willard
Dennie Hammond Udall	Ag	<i>Craftsbury</i>	1 N. C.
Charles Strain Van Patten	Cl	<i>Burlington</i>	386 Pearl
Arthur Montague Vaughan	Ag	<i>Woodstock</i>	11 Exp. Station
Harris Hard Walker	Cl	<i>Burlington</i>	181 S. Union
Charles Douglas Waters	Ch	<i>Winooski</i>	E. Spring, Winooski
Mabel Sophia Way	LS	<i>Burlington</i>	33 Mansfield
Donald C. Wedgeworth, A.B.	CE	<i>W. Berkshire</i>	24 M. C. H.

William Thomas Whelan	Ch	<i>Montpelier</i>	27 N. Willard
Robert Child Wilson	LS	<i>Bethel</i>	3 M. C. H.

JUNIOR CLASS

Max Walter Andrews	Cl	<i>W. Berkshire</i>	349 College
Alfred Ray Atwood	Cl	<i>Westfield</i>	41 M. C. H.
Warren Robinson Austin	LS	<i>Highgate</i>	36 N. C. H.
Charles Alpheus Bigelow	LS	<i>Bristol</i>	41 S. C. H.
Charles Francis Blair	Cl	<i>Morrisville</i>	349 College
George Howard Burrows	Ch	<i>Burlington</i>	The Richardson
Charles Ira Button	LS	<i>Brandon</i>	29 Mansfield
John Alden Chase	CE	<i>Randolph</i>	42 M. C. H.
Genevieve Collins	Cl	<i>Burlington</i>	94 Loomis
Clarence Lee Cowles	Cl	<i>Craftsbury</i>	56 Colchester
Leon Ernest Daniels	Cl	<i>Morrisville</i>	13 S. C.
Samuel Campbell Dunlop	Cl	<i>Poultney</i>	7 S. C.
Ernest Julius Ewing	Cl	<i>Clarendon</i>	40 Clarke
Frank Floyd Finney	LS	<i>Hinesburgh</i>	195 St. Paul
Ruth Fisher	LS	<i>Vergennes</i>	355 Pearl
Alpheus Breed Frizzell	Ag	<i>Canaan</i>	20 Exp. Station
Frank Keeler Goss	Cl	<i>Vergennes</i>	38 Buell
Harry Henderson Greene	Ch	<i>Burlington</i>	27 Loomis
Mary Isabelle Gregory	LS	<i>Burlington</i>	56 Elmwood
George Jean Holden	ME	<i>Burlington</i>	305 S. Union
Charles Asahel Hubbard	LS	<i>Whiting</i>	25 S. C. H.
Ada Almina Hurlburt	Cl	<i>Burlington</i>	11 Weston
Frank Roland Jewett	Cl	<i>Swanton</i>	44 M. C. H.
Wait Chatterton Johnson	Cl	<i>Rutland</i>	45 S. C. H.
Robert Ashton Lawrence	Cl	<i>Rutland</i>	35 S. C. H.
Emily Wheelock Lucia	LS	<i>Montpelier</i>	63 S. Willard
Edwin Ellsworth Miller	ME	<i>Newport</i>	46 N. C. H.
Belle Thayer Morse	Cl	<i>Randolph</i>	411 Main
Robert Bass Morton	EE	<i>Randolph</i>	42 M. C. H.
Mabel Nelson	LS	<i>Burlington</i>	118 Pearl

STUDENTS

105

George Douglas Osgood	Cl	<i>Montpelier</i>	31 N. C. H.
Mary Crafts Paddock	LS	<i>Craftsbury</i>	63 S. Willard
Charles Haswell Parker	LS	<i>Burlington</i>	325 S. Union
Clarence Willard Richmond	Ag	<i>Newport</i>	46 N. Winooski
Katie Lena Russell	LS	<i>Shelburne</i>	51 N. Union
May Winifred Russell	Cl	<i>Burlington</i>	129 Loomis
Lucy Etta Sawyer	LS	<i>Hyde Park</i>	187 Loomis
Donald Harris Scribner	Cl	<i>Hyde Park</i>	42 S. C. H.
James Thatcher Seaver	ME	<i>Quechee</i>	46 N. C. H.
Jacob Kingsley Shaw	Ag	<i>Northfield</i>	19 Exp. Station
Eunice Dewey Smith	Cl	<i>Barre</i>	411 Main
Fanny Lydia Smith	LS	<i>Shelburne</i>	51 N. Union
Harry Warner Smith	Cl	<i>Swanton</i>	44 M. C. H.
Hermon Emerson Smith	LS	<i>Middlebury</i>	25 S. C. H.
Bessie Marian Stewart	LS	<i>Bakersfield</i>	8 S. Willard
Alvin Milton Taylor	Ch	<i>Burlington</i>	76 Chase
Mary Carr Tewksbury	LS	<i>Randolph</i>	411 Main
Byron Eugene White	Ag	<i>Hardwick</i>	19 Exp. Station

SOPHOMORE CLASS

Lee Clark Abbott	LS	<i>Franklin, Mass.</i>	100 Church
James Hawley Aiken	Ch	<i>Benson</i>	85 S. Willard
Dell Beeman Allen	LS	<i>Burlington</i>	52 N. Winooski
Fred Edgar Allen	Ag	<i>Royalton</i>	18 Exp. Station
Charles Hobart Atwood	EE	<i>Burlington</i>	27 Buell
Fannie Howe Atwood	LS	<i>Burlington</i>	27 Buell
Alfred George Austin	CE	<i>E. Burke</i>	18 S. C.
Guy Winfred Bailey	Cl	<i>Essex Junction</i>	Essex Junction
Arthur Sanders Bean	Cl	<i>Randolph</i>	144 S. Willard
Royden Eugene Beebe	Ch	<i>Burlington</i>	67 N. Union
Edward Cyril Bessette	CE	<i>Plattsburgh, N. Y.</i>	23 M. C. H.
Arthur Boyce	ME	<i>Winchendon, Mass.</i>	12 S. C.
John Henry Brackett	EE	<i>St. Johnsbury</i>	42 N. C. H.

Lyman Brooks	ME	<i>Charlestown, N. H.</i>	349 College
Rufus Carl Brown	EE	<i>E. Swanton</i>	121 N. Union
Mary Tracy Brownell	LS	<i>Essex Junction</i>	Essex Junction
Amy Maud Burt	LS	<i>Swanton</i>	177 S. Prospect
Frederic Percy Byington	EE	<i>Charlotte</i>	35 N. C. H.
Mary Annie Carley	Cl	<i>Springfield</i>	135 Loomis
Edith Louise Carpenter	LS	<i>Webster, Mass.</i>	80 College
John Grixston Currier	LS	<i>Rutland</i>	28 Univ. Place
John Morrill Downer	EE	<i>Stowe</i>	24 Greene
Horatio Nelson Drury, jr.	Cl	<i>S. Burlington</i>	S. Burlington
Arthur Woodbury Edson	Cl	<i>Cavendish</i>	486 College
Wilbert James Edwards	EE	<i>Winooski</i>	21 Weaver, Winooski
Delano Eugene Farr	Cl	<i>Bristol</i>	46 S. C. H.
Winfield Matthewson Farr	Cl	<i>Bristol</i>	349 College
Eliza Mabelle Farman	LS	<i>W. Lebanon, N. H.</i>	483 Main
John Lowe Fort, jr.	LS	<i>Winooski</i>	Winooski
Adams Brock Fulton	Ch	<i>Bradford</i>	1 M. C. H.
Guido Joseph Giudici	CE	<i>Proctor</i>	14 S. C.
Glenn Carlos Gould	Cl	<i>Morrisville</i>	349 College
William Dougald Grant	Ag	<i>Barre</i>	14 Exp. Station
Mary Wilson Harrison	Cl	<i>Brandon</i>	63 S. Willard
Margaret Mary Healey	LS	<i>Wallingford</i>	216 S. Prospect
Clifton Morse Heaton	LS	<i>Montpelier</i>	305 S. Union
Harry Dickerman Holden	EE	<i>Pittsford</i>	4 M. C. H.
Frederick William Hubbard	Cl	<i>Rutland</i>	46 S. C. H.
Rufus Stuart Hunt	EE	<i>E. Peacham</i>	45 M. C. H.
Hinman Barrett Hurlbut	CE	<i>Ogdensburg, N. Y.</i>	100 Church
James Chesterfield Jones	Cl	<i>Burlington</i>	433 S. Union
Robert Douglas Kellogg	Cl	<i>Plattsburgh, N. Y.</i>	36 S. C. H.
Joshua Bartlett Kirkpatrick	Cl	<i>E. Deering, Me.</i>	2 Colchester
James McEwen Larabee	EE	<i>Craftsbury</i>	9 N. C.
Napoleon Arthur Laury	Ch	<i>Burlington</i>	272 North
Howard Augustus Lewis	EE	<i>Burlington</i>	30 Lafayette Pl.

Harry Chester Libby	CE	<i>Lowell, Mass.</i>	4 S. C.
Levi Bates Lincoln	CE	<i>Deering, Me.</i>	71 N. Winooski
Arthur Edward Lovett	LS	<i>Chatham Centre, N. Y.</i>	M. C.
James Leslie Mackay	ME	<i>Peacham</i>	45 M. C. H.
Alice Josephine Morris	Cl	<i>Webster, Mass.</i>	80 College
Charles Tidd Murray	EE	<i>Charlestown, N. H.</i>	349 College
Martha Ella Needham	Cl	<i>Leicester Junction</i>	63 S. Willard
Albert Richard Nourse	Ag	<i>Springfield</i>	8 S. C.
Harold Alvah Nourse	LS	<i>Barre, Mass.</i>	45 N. C. H.
Harry Bigelow Oatley	ME	<i>Rochester, N. Y.</i>	1 N. C. H.
Carroll Dunham Partridge	Ch	<i>Bennington</i>	133 King
Royal Willis Peake	EE	<i>Bristol</i>	26 S. C. H.
Frederick Russell Pember	Ag	<i>Putney</i>	13 Exp. Station
James Burnham Porter	Cl	<i>Rutland</i>	15 Hayward Bl'k
Jean Wheeler Potwin	Cl	<i>Brandon</i>	51 N. Union
Thomas Reed Powell	Cl	<i>Burlington</i>	70 Williams
Claude Marwell Richmond	ME	<i>Springfield</i>	14 N. C.
Louis Philip St. Cyr	EE	<i>Woodstock</i>	43 M. C. H.
Wilbur Cyrus Sawyer	CE	<i>Essex Junction</i>	Essex Junction
Perley Spaulding	Ag	<i>Bethel</i>	Exp. Farm
Oscar Ernest Spear	CE	<i>Charlotte</i>	98 Loomis
Harry Brydon Spencer	EE	<i>Proctor</i>	15 S. C.
Laura Verona Stanhope	LS	<i>Berkshire</i>	43 S. Prospect
Charles Marcellus Sturgess	Cl	<i>Sheldon</i>	M. C.
Jesse Weston Tobey	Cl	<i>Burlington</i>	123 N. Winooski
Charles Amasa Tracy	Cl	<i>Burlington</i>	149 N. Union
Walter Wallace Tyler	LS	<i>Burlington</i>	262 Pearl
Ellery Elmer Webster	Cl	<i>Barton</i>	11 N. C.
Orville Gould Wheeler	Cl	<i>Burlington</i>	335 S. Union
Walter Byron Williams	Cl	<i>Brockton, Mass.</i>	41 N. C. H.
Oscar Bradford Wood	Ag	<i>Georgia</i>	17 Exp. Station
Charles Robert Young	EE	<i>N. Craftsbury</i>	9 N. C.

FRESHMAN CLASS

Wellington Esty Aiken	LS	<i>Benson</i>	85 S. Willard
Arthur Scott Bailey	LS	<i>St. Albans</i>	25 N. C. H.
William Henry Bolkum	Ag	<i>Wells River</i>	19 Exp. Station
Herman David Bone	Ag	<i>Wells River</i>	19 Exp. Station
Howard Slocum Booth	Ch	<i>Swanton</i>	109 Elmwood
Charles Irving Boyden	Ag	<i>Randolph Centre</i>	Exp. Farm
Graton S. Brand	Ch	<i>Essex</i>	39 N. Union
Theron Cumins Brooks	E	<i>Randolph</i>	21 N. C. H.
Albert Wayne Butler	Cl	<i>E. Jamaica</i>	2 N. C. H.
Ernest Hiram Buttles	Cl	<i>Brandon</i>	5 N. C.
Silas Ralph Carpenter	LS	<i>Richford</i>	22 N. C. H.
Fred Wade Carrier	Cl	<i>Bennington</i>	27 Buell
Grace Lydia Cockle	LS	<i>Williston</i>	Winooski
May Conro	LS	<i>South Hero</i>	49 Mansfield
Patrick Michael James Corry	Ag	<i>Montpelier</i>	449 Pearl
Marshall Baxter Cummings	Ag	<i>N. Thetford</i>	Exp. Farm
Samuel Sibley Dennis, jr.	LS	<i>Hardwick, Mass.</i>	349 College
Clarence Asa Dodge	E	<i>Barre</i>	2 N. C.
Vernon Waterman Dodge	LS	<i>Morrisville</i>	349 College
Charles Scott Dow	E	<i>Burlington</i>	234 Main
Carroll Howard Drown	Cl	<i>Johnson</i>	51 Henry
Helen May Ferguson	LS	<i>Burlington</i>	77 N. Union
Bernard Peter Finnegan	E	<i>Hyde Park</i>	35 Colchester
Willard Lyman Fuller	Ch	<i>Essex Junction</i>	Essex Junction
Ivah Winifred Gale	LS	<i>Newport</i>	85 S. Willard
George Fletcher Gardner*	Ch	<i>Lowell, Mass.</i>	5 S. C.
Kathryn Knee Gebhardt	LS	<i>Shelburne</i>	483 Main
Pearley Andrew Gilmore	Cl	<i>Essex</i>	14 N. C.
George William Gilson	E	<i>Bethel</i>	20 Exp. Station
Grace Anna Goodhue	LS	<i>Burlington</i>	123 Maple
Clifford Burnham Griswold	E	<i>Felchville</i>	187 St. Paul

*Deceased.

Aaron Hinman Grout	LS	<i>Derby</i>	36 N. C. H.
Inez Adelaide Grout	LS	<i>Derby Centre</i>	229 Colchester
Mary Adelle Grout	LS	<i>Derby Centre</i>	229 Colchester
Charlotte Frances Hale	LS	<i>Burlington</i>	150 N. Union
Fred Ellsworth Hatch	Ch	<i>Burlington</i>	50 Loomis
Robert Farrar Hawley	LS	<i>Swanton</i>	22 M. C. H.
George Henderson	Cl	<i>Burlington</i>	30 Chase
James Campbell Hickey	LS	<i>Rutland</i>	16 S. C.
Charles Allen Kern	Ch	<i>Burlington</i>	72 S. Winooski
Allan Wilson Kingsland	Cl	<i>Burlington</i>	267 S. Union
George Holland Kirkpatrick	Cl	<i>E. Deering, Me.</i>	2 Colchester
Henry Page Lapelle	E	<i>Swanton</i>	1 M. C. H.
Edwin Winship Lawrence	Cl	<i>Rutland</i>	35 S. C. H.
Arthur Vaughan Leavitt	Ag	<i>Bethel</i>	17 Exp. Station
Frances Hamlin Lee	Ch	<i>Burlington</i>	31 Lafayette Pl.
George Samuel Lee	LS	<i>Montpelier</i>	2 N. C.
Arlington Pearl Little	E	<i>North Hero</i>	342 Pearl
Fred Clarence Locke	LS	<i>Springfield</i>	10 S. C.
Ernest Nelson McColl	E	<i>S. Ryegate</i>	2 M. C. H.
Harris David McDonald	Cl	<i>Swanton</i>	34 Hickok Pl.
Madge Elizabeth McElroy	LS	<i>Bakersfield</i>	294 N. Winooski
Alfred John McKellow	Cl	<i>Keeseville, N. Y.</i>	5 N. C. H.
Mary Dearstyne MacKenzie	Cl	<i>Troy, N. Y.</i>	368 S. Union
George Frederick Marsh	Ch	<i>Chester</i>	187 St. Paul
Josephine Adelaide Marshall	Cl	<i>St. Johnsbury</i>	47 N. Prospect
Carroll Putnam Marvin	E	<i>Montpelier</i>	349 College
Roy Sidney Morse	LS	<i>Montpelier</i>	349 College
Florence Eliza Nelson	LS	<i>Burlington</i>	118 Pearl
George Edgar Nelson	E	<i>Derby Line</i>	32 N. C. H.
Warren Adolphus Noyes	Cl	<i>Hyde Park</i>	6 S. C.
Fred Jonathan Park	E	<i>Lyndon</i>	2 S. C.
Earl Elkins Parker	E	<i>Barre</i>	349 College
Katherine Louise Parker	LS	<i>Bradford</i>	411 Main

Martin Albert Pease	E	<i>Springfield, Mass.</i>	2 N. C. H.
Julia Emily Pember	LS	<i>Wells</i>	34 N. Prospect
Dean Homer Perry	Cl	<i>Barre</i>	6 N. C. H.
Edward Hanson Reed	Ch	<i>Burlington</i>	41 Loomis
Henry Stanley Renaud	Ch	<i>Burlington</i>	135 Elmwood
Harry Henry Reynolds	Ch	<i>Cambridge</i>	159 S. Union
James Reynolds	E	<i>Claremont, N. H.</i>	2 S. C.
William Edson Ross	Cl	<i>Franklin Falls, N. H.</i>	2 Colchester
Harry Stanton Rowe	Cl	<i>Burlington</i>	56 S. Winooski
Ellsworth Henry Sargent	Ag	<i>E. Corinth</i>	Exp. Farm
James Rhitenhouse Scott, jr.	LS	<i>New York, N. Y.</i>	25 M. C. H.
Dan German Seager	Ag	<i>Brandon</i>	5 N. C.
John Elliot Seaver	E	<i>Quechee</i>	45 N. C. H.
Max Elvin Severance	LS	<i>Montpelier</i>	14 S. C.
Anna Brown Shepard	LS	<i>Ticonderoga, N. Y.</i>	47 N. Prospect
Howard Russell Smalley	Ch	<i>Burlington</i>	400 S. Union
Samuel Waldo Smith	E	<i>Barre, Mass.</i>	45 N. C. H.
Allen Robert Sturtevant	LS	<i>New Haven</i>	30 Lafayette Pl.
Carl Noyes Thomas	E	<i>Lowell, Mass.</i>	5 S. C.
Raymond Henry Tryon	E	<i>Winchendon, Mass.</i>	100 Church
Herbert George Tupper	LS	<i>Bakersfield</i>	4 M. C. H.
James Tyndall	Cl	<i>Morrisville</i>	6 S. C.
Albert Frank Ufford	Cl	<i>Fairfax</i>	43 Colchester
Frederick Paul Wadleigh	Cl	<i>E. Berkshire</i>	42 N. C. H.
James Franklin Waterman	Ag	<i>Bethel</i>	20 Exp. Station
Elmer Merrill Webster	E	<i>Shelburne</i>	104 N. Willard
Earle Hubbell Welles	E	<i>Sunderland</i>	16 N. C.
Susie Pearl Whiteman	LS	<i>Burlington</i>	85 S. Willard
Jessie Patience Woodworth	Cl	<i>Westford</i>	63 S. Willard

SPECIAL STUDENTS

Lawrence Wesley Barton	Ag	<i>Ludlow</i>	1 N. C.
Susie Alice Beach		<i>Burlington</i>	64 Buell

STUDENTS

111

Owen Taft Briggs	EE	<i>Lebanon, N. H.</i>	39 S. Union
Carl Brigham Brownell	Cl	<i>Burlington</i>	196 S. Willard
Mary Josephine Dwyer		<i>Burlington</i>	196 Bank
Mabel Gertrude Eddy		<i>Hinesburgh</i>	229 Colchester
Arthur Warren Floyd	EE	<i>Lowell, Mass.</i>	4 S. C.
Marion Martin Forbes		<i>Burlington</i>	63 S. Willard
Edward Pierson Hendrick	CE	<i>Springfield, Mass.</i>	21 S. C. H.
Ray Woodbury Huse	LS	<i>Montpelier</i>	40 Clarke
Francis Fletcher Bernard Joyner		<i>Burlington</i>	29 S. Willard
Guy Philbrick Lamson	Ch	<i>Randolph</i>	5 M. C. H.
Charles Putnam McKnight	LS	<i>E. Montpelier</i>	5 N. C. H.
Frederick Clark Mason	Ch	<i>Plattsburgh, N. Y.</i>	36 S. C. H.
Grace Moseley		<i>Troy, N. Y.</i>	150 Bank
Russell Smith Page	Cl	<i>Hyde Park</i>	38 Buell
John Oliver Presbrey	Ch	<i>Burlington</i>	109 Summit
Elizabeth Agnes Richmond		<i>Newport</i>	46 N. Winooski
Anna May Roberts		<i>Burlington</i>	78 Pine
James Obadiah Walker	Ch	<i>Burlington</i>	91 N. Union
Edward Chapman Wright	Ch	<i>Burlington</i>	16 Grant

MEDICAL STUDENTS, 1897

Edson Moses Abbot.....	Laconia, N. H.
John Adams.....	Dorchester, Mass.
Lemuel Payson Adams, A. B.....	Swanton, Vt.
Albert Kurwin Aldinger.....	Bloomsbury, Pa.
Leon Bernard Allen.....	East Roxbury, Vt.
Walter Brainard Allen.....	St. Johnsbury, Vt.
Ernest Jason Alley.....	Lowell, Mass.
George Riley Anderson.....	Rutland, Vt.
Clayton Gerald Andrews, Ph. B.....	Richmond, Vt.

Albert Alphonso Appel.....	Morristown, Pa.
John Waite Avery, A. B.....	St. Albans, Vt.
Harold Levi Baldwin.....	Gouverneur, N. Y.
Harry Lee Barnes.....	Adams, Mass.
Walter Emery Barton.....	Spencer, Mass.
George Joseph Bassow.....	Stafford Springs, Conn.
Charles Henry Bates.....	Burlington, Vt.
George Lucian Bates.....	Morrisville, Vt.
Frederick Wheaton Baylies.....	New Bedford, Mass.
Charles Arthur Beach.....	Burlington, Vt.
Chester Charles Beckley.....	Plainfield, Vt.
Ernest Walsworth Bennett.....	Fairport, N. Y.
Edwin Payson Bigelow.....	Stowe, Vt.
John Mason Blake.....	Fairfax, Vt.
John Henry Blodgett, Ph. B.....	Grafton, Vt.
Charles Austin Bonny, jr	New Bedford, Mass.
Nicholas Borrelli.....	Brooklyn, N. Y.
Richard Botsford.....	Fort Dodge, Iowa
Thomas Edward Boylan.....	Taunton, Mass.
Frank Hamilton Brazill.....	Boston, Mass.
Robert Truman Briggs.....	Brooklyn, N. Y.
Charles Henry Brown.....	Springfield, Mass.
Edmund Towle Brown.....	Ashland, N. H.
John Harold Buffum, Ph. B.....	East Dorset, Vt.
Newell Cutter Bullard.....	North Attleboro, Mass.
Edward Daniel Burt.....	Ashland, N. H.
William Francis Caffrey.....	Huntington, Mass.
Thomas Callaghan.....	Pawtucket, R. I.
Claud Melnotte Campbell.....	Rochester, Vt.
Noe Napoleon Charbonneau.....	Hudson, Mass.
George Trumble Childs.....	Wallingford, Vt.
Rev. Elmore C. Clark.....	Ashland, N. H.
Allen Bell Clement.....	Burlington, Vt.

Dexter Jameson Clough.....	Portland, Me.
Irving Smith Coburn.....	Belvidere, Vt.
Samuel Johnson Cogswell.....	Ashburnham, Mass.
John Henry Collins.....	Schuylerville, N. Y.
James Hervey Conklin.....	Hartford, Conn.
Ralph Dent Converse.....	New York, N. Y.
Frank Phillip Conway.....	Hinsdale, N. H.
James William Courtney.....	Burlington, Vt.
John Patrick J. Cummins, A. B.....	Vineland, N. J.
Earl Percy Cushman.....	Branford, Conn.
Martin James Dalton.....	Marlboro, Mass.
Charles Henry Dean.....	North Ferrisburgh, Vt.
William Edward Denning.....	Burlington, Vt.
Daniel Dinsmore Delaney.....	Davis, W. Va.
Arthur Clarence Devere.....	Auburn, R. I.
Fred Hewitt Devere.....	Auburn, R. I.
Herman Hunter Dinsmore.....	Manchester, N. H.
John Hazen Dodds.....	North Hero, Vt.
James Frederick Dorr.....	Oakdale, Mass.
Joseph Abner Dow.....	West Baldwin, Me.
Augustus Bidwell Drummond.....	Bangor, Me.
Frank Lee Dunham, A. B.....	Northfield, Vt.
Edward Wilson Dupee.....	Bridgeport, Conn.
Stanton Seely Eddy, A. B.....	Middlebury, Vt.
Frank Newcommer Emmerts.....	Hagerstown, Md.
William Hudson Englesby, A. B.....	Burlington, Vt.
John Francis English.....	Stafford Springs, Conn.
Frank Emerson Farmer.....	East Burke, Vt.
Charles William Farr.....	Elmira, N. Y.
Harry Roswell Farris.....	Oxford, Me.
Rev. Robert Henry Ferguson, A. B., M. A.....	Boston, Mass.
George Hardy Finch.....	Burlington, Vt.

Ernest Jabez Flagg.....	Richmond, Vt.
Fred Abram Fowler.....	Hill, N. H.
George William Franklin.....	Sullivan, Me.
Claud Adelbert Freligh.....	Nashua, N. H.
Frank Chester Frisbie.....	Amsterdam, N. Y.
Worth Tyndall Gatchell.....	Alton, N. Y.
John Gibson.....	Burlington, Vt.
Edward Francis Gleason.....	Hyannis, Mass.
Anthony Marvin Goddard.....	Hyde Park, Vt.
Dana Bailey Goddard.....	Burlington, Vt.
Chauncy Hopkins Graves, Ph. G.....	Buffalo, N. Y.
Albert Joseph Greenwood.....	Springfield, Vt.
William H. Grinnell.....	Rutland, Vt.
Walter Sebra Gustin.....	Union Village, Vt.
Frederick Jacob Haendel.....	New York City
William Henry Thomas Hamill.....	Bristol, R. I.
W. R. Harkness.....	Hinesburgh, Vt.
John Darwin Harrigan.....	Chateaugay, N. Y.
David Eugene Harriman, jr.....	St. Johnsbury, Vt.
Fred. Thorburn Hatch.....	Burlington, Vt.
Alfred Taylor Hawes.....	Burlington, Vt.
Cyrus Hamilton Hazen.....	West Hartford, Vt.
Robert Hazen, A. B.....	Burlington, Vt.
Lewis Alburtus Heidel.....	Grant, N. Y.
George Isaac Hemingway.....	Burlington, Vt.
Elias Pierce Hicks.....	Astoria, L. I.
Aymer Seth Columbus Hill.....	Johnson, Vt.
Morgan Brewster Hodskins.....	Wadham's Mills, N. Y.
Thomas Joseph Hogan.....	Pittsford, Vt.
Harley Walter Holden.....	Randolph, Vt.
Perley Eugene Holmes.....	Brattleboro, Vt.
Harry Varsil Hubbard.....	Rochester, Vt.
George Fay Hubbel.....	St. Albans, Vt.

Rev. George Arthur Huntley.....	Weston Super Mare, England
Chester James Hurlbut.....	Georgia, Vt.
Harry Bastow Huver.....	Williamsville, N. Y.
Fred Kinney Jackson, A. B.....	Barre, Vt.
John Lawrence Jackson.....	Fort Ethan Allen, Vt.
Joseph Addison Jackson.....	Barre, Vt.
Charles Kimball Johnson.....	Bristol, Vt.
Robert William Johnson.....	Weavertown, N. Y.
Stillwell Johnston.....	Vanceboro, Me.
Harry Gray Judson.....	Bethel, Conn.
Thomas Banks Kell.....	Lancaster, S. C.
James Fatheringham Kendrick.....	Glover, Vt.
James Thomas Kerrigan.....	Hudson, Mass.
Henry Barstow Ketcham.....	Hartland, Vt.
William Richard Keyes.....	Glens Falls, N. Y.
Charles Henry Kingsbury.....	Danielson, Conn.
William Ripley Kinson.....	Burlington, Vt.
Wesley Lindley Murray Knowles.....	North Ferrisburgh, Vt.
Winford Howard Lane.....	Ludlow, Vt.
Henry Clarence Lapp.....	Clarence, N. Y.
Chester Sylvester Leach.....	Hyde Park, Vt.
Harry Edwin Lewis.....	Burlington, Vt.
Clarence Bertram Livingston.....	Lowell, Mass.
Ernest George Livingston.....	Berkshire, Vt.
Patrick Henry Lodge.....	Naugatuck, Conn.
James Love.....	Troy, N. Y.
Alverne Percy Lowell, Ph. B.....	Burlington, Vt.
Donald William Macdonald.....	Burlington, Vt.
Charles Herbert Mace.....	Sydney Center, N. Y.
William David McFee.....	Haverhill, Mass.
Albert James Mackay.....	Peacham, Vt.
Frederick William McKibbon.....	St. Stephen's, N. B.
James Nicholas McKone.....	Hartford, Conn.

William Joseph McNiff.....	Worcester, Mass.
Dennis Edwin McSweeney.....	North Creek, N. Y.
Robert Mowe Mahlman, A. B.....	Lubec, Me.
Benjamin Louis Marcou.....	Berlin, N. H.
Erwin Walter Markham.....	East Long Meadow, Mass.
Henry A. Maynard.....	Jay, N. Y.
William Francis Meagher.....	Chicopee, Mass.
Joseph Euclid Mercier.....	Farnumsville, Mass.
Quincy Heald Merrill.....	Milford, N. H.
Ross Halford Miner.....	North Pownal, Vt.
Herbert Nathan Montefiore.....	St. Albans, Vt.
Harry Herbert Moore.....	Wales, Mass.
Arthur Oscar Morton.....	St. Albans, Vt.
Star Abner Moulton.....	Bridgeport, Conn.
Edward John Mountain.....	Danville, Que.
Isaac Charles Munson.....	Buffalo, N. Y.
Albert Warren Newhall.....	Stoneham, Mass.
Nelson Estes Nichols.....	Brookfield, Mass.
William Edwin Oakes.....	Burlington, Vt.
J. F. O'Brien.....	Bellows Falls, Vt.
John Joseph O'Connor.....	Brattleboro, Vt.
Henri Pache.....	Pittsfield, Mass.
Charles Fulton Parker.....	West Baldwin, Me.
Carroll Dunham Partridge.....	Bennington, Vt.
John Reynolds Patton.....	Alburgh Springs, Vt.
Clifford Atherton Pease.....	West Bolton, Vt.
Sidney Prentice Phelps.....	Norwood, N. Y.
Wallace Marcell Pierce.....	Cambridge, Vt.
Willard DeForest Preston.....	Attica, N. Y.
Fred Elmer Prichard, B. L.....	Bradford, Vt.
Albert John Pullen.....	Brattleboro, Vt.
Robert Huse Purple.....	Woodstock, Vt.
Byron Herbert Purvis.....	Montreal, P. Q.

Walter Hildreth Ranks.....	Lowell, Mass.
Robert Myron Reed.....	Burlington, Vt.
Rees Byron Rees.....	Boston, Mass.
Rev. John Kelsall Robson.....	Winslow, England
Frank Mathews Rogers.....	Panton, Vt.
Verne Moores Rogers.....	Ashland, N. H.
Alfred Merriman Rowley.....	Townsend, Mass.
George Millar Sabin.....	Malone, N. Y.
Henry Waite Sabin.....	Montpelier, Vt.
Joseph Arthur St. Germain.....	Winooski, Vt.
Frederick St. John.....	Burlington, Vt.
George Henry Sanborn.....	Concord, N. H.
Howard Elmer Sargent.....	Morrisville, Vt.
William Avery Schermerhorn.....	Wilton, N. Y.
Anton Henry Schroeler.....	Woodland, N. Y.
Walter Chadwick Sears.....	Portland, Conn.
Henry Hamblin Seely, A. B.....	Middlebury, Vt.
Carlos Adams Shaw.....	South Northfield, Vt.
Dennis Miner Shea.....	Nashua, N. H.
Frederick Damon Sherrard.....	Winn, Me.
Jacob Eaton Shoecraft.....	Mannsville, N. Y.
Charles Rufus Skinner, B. S.....	Hoosick Falls, Vt.
Lester Everet Smith.....	Wilton, N. Y.
Charles Jacob Spaid.....	Philmont, N. Y.
Charles Benjamin Sprague.....	Wadham's Mills, N. Y.
Frederick John Stephenson.....	Burlington, Vt.
John Milton Stevens.....	Richmond, Vt.
Peter Beadalburne Stewart.....	West Superior, Wis.
Ned Carroll Stiles.....	St. Johnsbury, Vt.
Herbert Emmons Stockwell.....	Burlington, Vt.
LeRoy Ray Stoddard.....	Glens Falls, N. Y.
Mortimer Joseph Stoddard.....	Brattleboro, Vt.
Bingham Hiram Stone, A. B.....	Jericho, Vt.

George Henry Stone.....	Munson, Mass.
Thomas Jefferson Strong.....	Burlington, Vt.
Charles Porter Sylvester.....	Hull, Mass.
Edgar Charles Syrett.....	Springfield, Mass.
Edward Patrick Teague.....	Lowell, Mass.
Albert Johnson Thomas.....	Middle Granville, N. Y.
William Burton Thorning.....	Keene, N. H.
William Taft Tilly.....	South Burlington, Vt.
William John Tindall, jr	Burlington, Vt.
Francis Dean Toomey.....	Bridgeport, Conn.
Frank Lincoln Tozier, A. B.....	Fairfield Centre, Me.
John Trotter, Jr.....	Troy, N. Y.
Frank James Tuttle.....	Naugatuck, Conn.
Waldo Jesse Upton.....	St. Albans, Vt.
William John Waller.....	Lowell, Mass.
Vance William Waterman.....	Burlington, Vt.
Karl Weaver.....	New Boston, N. H.
Norman Brown Webber, B. S.....	Thetford Centre, Vt.
Arthur Dudley West, A. B.....	Newport, Vt.
Frank Davis Weymouth.....	Howland, Me.
Albert Andrews Wheelock.....	Burlington, Vt.
Frank Dunster White.....	Cambridge, N. B.
Walter James White.....	Shelburne, Vt.
George Duff Whiteside.....	Vergennes, Vt.
Henry Lawrence Wilder.....	Swanton, Vt.
Rodney F. Willard.....	East Montpelier, Vt.
Allen Everard Wilson.....	Belfast, Me.
Robert Browning Wilson.....	Washington, Vt.
Maurice John Wiltse, Ph. G.....	Richfield Springs, N. Y.
Ernest Oliver Winship.....	Manchester, Vt.
G. W. Wren.....	Bridgeport, Conn.
Charles Edward Zink.....	Branford, Conn.

DEGREES CONFERRED IN 1896-97

HONORARY

DOCTORS OF LAWS

JOHN HEMAN CONVERSE of Philadelphia.

ALLAN DANVERS BROWN of Northfield, Vt.

DOCTOR OF DIVINITY

REV. JOHN ELLSWORTH GOODRICH of Burlington

IN COURSE

DOCTORS OF MEDICINE

Clayton Gerald Andrews, Ph. B.	William Hudson Englesby, A. B.
John Waite Avery, A. B.	Charles William Farr
Walter Emery Barton	Worth Tyndall Gatchell
Charles Henry Bates	Anthony Marvin Goddard
George Lucian Bates	Chauncy Hopkins Graves, Ph. G.
Frederick Wheaton Baylies	William H. Grinnell
Ernest Walsworth Bennett	Walter Sebra Gustin
Edwin Payson Bigelow	John Darwin Harrigan
John Henry Blodgett, Ph. B.	Lewis Albertus Heidel
Edmund Towle Brown	George Isaac Hemingway
William Francis Caffrey	Rev. George Arthur Huntley
Samuel Johnson Cogswell	Harry B. Huver, D.D.S., M.D.S.
John Henry Collins	Wesley Lindley Murray Knowles
John Patrick J. Cummins, A. B.	Henry Clarence Lapp
Herman Hunter Dinsmore	Harry Edwin Lewis
Frank Lee Dunham, A. B.	Alverne Percy Lowell, Ph. B.
Stanton Seeley Eddy, A. B.	William David McFee

Albert James Mackay
 Isaac Charles Munson
 William Edwin Oakes
 John Reynolds Patton
 Robert Huse Purple
 Walter Hildreth Ranks
 Verne Moores Rogers
 Alfred Merriman Rowley
 Frederick Damon Sherrard
 John Milton Stevens

Herbert Emmons Stockwell
 William John Tyndall, jr.
 William John Waller
 Albert Andrews Wheelock
 Frank Dunster White
 Henry Lawrence Wilder
 Rodney F. Willard
 Allen Everard Wilson
 Robert Browning Wilson

MASTER OF ARTS

George Hiram Dalrymple, Ph. B. 1895

BACHELORS OF ARTS

Lemuel Payson Adams	Adelle Irene Lee
Blanche Brigham	Theodora May Plumley
George Moxham Burdick	Annie Laurie Sherburne, <i>cum laude</i>
Henry W. Clark, <i>magna cum laude</i>	Bingham Hiram Stone
Gay Worthington Felton	Arthur Roy Webster
Tracy E. Hazen, <i>magna cum laude</i>	Donald Clark Wedgeworth
George Maynard Hogan	Frederick Buell Willard, <i>cum laude</i>
Fred Kinney Jackson	

BACHELORS OF PHILOSOPHY

Edwin Browne Allen	Frederick F. Lincoln, <i>cum laude</i>
John Stephen Buttles, <i>cum laude</i>	Grace Alice Noyes
Charles Austin Coburn	Katharine Jane Page
May Alice Edwards	Bessie Lou Stearns
Arline Estelle Ladd	George W. Tapley Whitney
Albert Ernest Lewis	

BACHELORS OF SCIENCE IN CIVIL ENGINEERING

Frank Porter Davis	Douglas Winfield Holton
James Lyford Davis	George Edson P. Smith, <i>cum laude</i>
Leonard Smith Doten, <i>cum laude</i>	

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

William James Sayward

BACHELORS OF SCIENCE IN ELECTRICAL ENGINEERING

Arthur Otis Howe

Almon Beede Stetson

BACHELORS OF SCIENCE IN CHEMISTRY

Walter Pope Kern

Charles Flagg Whitney

William Wallace Murray

Charles Augustus Wronn

BACHELORS OF SCIENCE IN AGRICULTURE

Charles Frederick Clark

William Allen Orton

Edward Elisha Herrick

Madison Alden Parker, *cum laude*

HONOR LIST, 1896-97

Class of 1897

GENERAL HIGH STANDING

Henry Wallace Clark

Frederick Buell Willard

Leonard Smith Doten

Madison Alden Parker

Annie Laurie Sherburne

Frederick Fuller Lincoln

Tracy Elliot Hazen

John Stephen Buttles

George Edson Philip Smith

SPECIAL HONORS

Greek :—Tracy Elliot Hazen*French* :—Bessie Lou Stearns*Philosophy* :—George Washington Tapley Whitney*Political Science* :—Henry Wallace Clark*Biology* :—Tracy Elliot Hazen*Chemistry* :—Charles Flagg Whitney

HONORABLE MENTION FOR THESIS OF CONSPICUOUS MERIT

William Allen Orton

Madison Alden Parker

SPEAKERS AT COMMENCEMENT

John Stephen Buttles

Arline Estelle Ladd

Henry Wallace Clark

Grace Alice Noyes

Tracy Elliot Hazen

George Edson Philip Smith

George Maynard Hogan

PRIZES

THE EDWARD HAIGHT PHELPS PRIZE IN CIVIL ENGINEERING

George Edson Philip Smith

PRIZES IN DECLAMATION

First : John Lowe Fort, jr.*Second* : Charles Ira Button*Third* : Robert Ashton Lawrence

PRIZES IN READING

First : Margaret Mary Healey*Second* : Mary Crafts Paddock*Third* : Belle Thayer Morse

JUNIOR PRIZE FOR PROGRESS

James Ora Coddington

ENTRANCE EXAMINATION PRIZES

1896

Charles Amasa Tracy, *Latin*
Fitted at the Burlington High SchoolCharles Amasa Tracy, *Greek*
Louis Philip St. Cyr, *Mathematics*
Fitted at the Woodstock, Vt., High School

Laura Verona Stanhope, *Mathematics*

Fitted at the St. Johnsbury Academy

HONORABLE MENTION

Herbert Harold Hilton, *Latin, Greek, Mathematics*

Fitted at the Lynn (Mass.) Classical High School

Horatio Nelson Drury, jr., *Latin*

Fitted at the Burlington High School

1897

Allan Wilson Kingsland, *Latin*

Fitted at the Burlington High School

Josephine Adelaide Marshall, *Greek*

Fitted at the St. Johnsbury Academy

Josephine Adelaide Marshall, *Mathematics*

HONORABLE MENTION

Josephine Adelaide Marshall, *Latin*

Charles Scott Dow, *Greek*

Fitted at the Burlington High School

Allan Wilson Kingsland, *Greek*

Charles Allen Kern, *Mathematics*

Fitted at the Burlington High School

Earle Hubbell Welles, *Mathematics*

Fitted at the Hoosick Falls (N. Y.) High School.

SPEAKERS ON FOUNDER'S DAY, 1897

Prof. Davis Rich Dewey, Ph. D., 1879

Perley Orman Ray, 1898

George Maynard Hogan, 1897

The three students reported in 1897 to the U. S. War Department and to the Adjutant General of Vermont, as having shown most aptitude for military service (see p. 70) were the following:

Frederick Buell Willard

George Edson Philip Smith

William Wallace Murray

ASSOCIATE ALUMNI

President, Robert H. Fleming, Chicago

Vice-President, Hon. Elihu B. Taft, Burlington

Secretary, Charles E. Allen, Burlington

Treasurer, James H. Macomber, Burlington

Obituary Committee, Hon. G. G. Benedict, Prof. J. E. Goodrich,
Principal S. W. Landon, J. Isham Bliss, D. D.

Executive Committee, Rev. S. L. Bates, Hon. Elias Lyman, J. D.
Denison, Hon. Henry W. Hill, C. H. Dunton, D. D.

Local Alumni Associations, designed to cherish the college spirit and promote the interests of the University in their several localities, have been formed as follows:

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CATALOGUE

OF THE

University of Vermont

AND

STATE AGRICULTURAL COLLEGE

BURLINGTON, VERMONT

1898-99

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OF THE
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BURLINGTON
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1898

CALENDAR

DEPARTMENTS OF ARTS AND SCIENCE

1898

28 Sept., Wednesday, A. M.,	First half-year began.
24 Nov., Thursday,	Thanksgiving Day.
Christmas Recess,	From Thursday evening, Dec. 22, to Wednesday noon, Jan. 4.

1899

26 Jan., Thursday,	Day of Prayer for Colleges.
30 " Monday,	Mid-year Examinations begin.
13 Feb., Monday,	Second half-year begins.
Spring Recess,	From Friday evening, March 24, to Tuesday noon, April 4.
1 May, Monday,	Founder's Day.
5 " Friday, 8 P. M.,	Prize Reading for Women Students.
26 " Friday, 8 P. M.,	Interscholastic Prize Speaking.
30 " Tuesday,	Memorial Day.
15 June, Thursday,	Final Examinations begin.
25 " Sunday, 3 P. M.,	Baccalaureate Discourse.
25 " " 7.30 P. M.,	Anniversary of Y. M. C. A.
26 " Monday,	Class Day.
27 " Tuesday, 9 A. M.,	Meeting of Phi Beta Kappa Society.
27 " " 10 A. M.,	Meeting of Associate Alumni.
27 " " 3 P. M.,	Oration before Phi Beta Kappa Soc.
27 " " 7.30 P. M.,	Prize Speaking.
28 " Wednesday,	Commencement.
29 " Thursday, 9 A. M.,	Entrance Examinations.

SUMMER VACATION

26 Sept., Tuesday, 9 A. M.,	Entrance Examinations.
27 " Wednesday, 8.15 A. M.,	First half-year begins.
7 Oct., Saturday,	Freshman Prize Entrance Exam- inations begin.

DEPARTMENT OF MEDICINE

1899

5 Jan., Thursday,	Lectures begin.
29 June, Thursday,	Exercises of Graduation.

HISTORY AND CHARTERS

“An Act for the purpose of Founding a University at Burlington,” was passed by the Legislature of Vermont, Nov. 2nd, 1791, of which the following are the Preamble and First Section :

“Whereas the education of youth is necessary for the advancement of morality, virtue and happiness, and tends to render a people or State respectable ; to promote which, establishments for Seminaries and Colleges have ever been patronized by all good governments ; and whereas several grants of land have already been made by the State and private liberal donations have been offered, for promoting so needful an establishment within the same, which demand the attention of this Legislature for laying the foundation for an institution so beneficent to society ; therefore,

Section I. It is hereby enacted by the General Assembly of the State of Vermont, that there shall be and hereby is a College instituted and established at such a place in the township of Burlington in the County of Chittenden as the Corporators hereinafter named shall think most convenient for that purpose, to be known and designated by the style of THE UNIVERSITY OF VERMONT.”

A subsequent Act gave the Corporators of the University “full power, right, and authority to appropriate to the use and benefit of the said University forever all such lands as have been already granted and reserved by the authority of this State for the use and benefit of a College.”

The Act of Incorporation vested in the Trustees of the University of Vermont full power “to appoint, elect, support and remove from time to time, all such officers and servants as they shall find necessary ; to direct the studies of the youth ; to establish professorships and professors, and provide for their support ; to make and establish all necessary rules, regulations and by-laws for the orderly government of said University (provided always that the said rules, regulations and by-laws shall not tend to give preference to any religious sect or denomination whatsoever) ; to grant and confer all such degrees, literary titles, honors and other distinctions as other Universities, Colleges or Seminaries have done or may of right do ; and to do

any other thing which shall be found necessary for the government and welfare of such an institution."

With the consent of the Corporation certain changes were made by the Legislature in respect to the number and the mode of election of the trustees of the University by Acts passed Nov. 2nd, 1810, and October 31st, 1823 ; but these were, with like consent, repealed by the Act of October 30th, 1838, which revived and confirmed the provisions of the original charter, which charter remains in full force at the present time, with such modifications as the Corporation of the University accepted in 1865, in accordance with the provisions of the charter of The University of Vermont and State Agricultural College.

In 1842, largely through the exertions of Hon. Justin S. Morrill, then Representative and since Senator from Vermont, Congress passed an "Act donating public lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts." Under the provisions of this Act, the Legislature of Vermont chartered in 1862 the Vermont Agricultural College, which, failing to receive the support necessary to put it into operation, was by an Act approved Nov. 6, 1865, incorporated with the University of Vermont into one institution by the name of "The University of Vermont and State Agricultural College." This corporation is invested with the property, rights, powers and privileges which belonged to both or either of the corporations so combined, and "shall be and remain a body corporate forever, for the purpose of carrying out the objects contemplated in the respective charters" of the two institutions.

The "objects contemplated" in the charter of the Vermont Agricultural College are stated in the exact language of the Act of Congress providing for Colleges of Agriculture and the Mechanic Arts, as follows :

"The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic

arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

The objects contemplated in the charter of the University of Vermont are stated in the Preamble and Sections as given above.

The charter of the University of Vermont and State Agricultural College requires that "there shall, at all times, be maintained in the institution hereby created such instruction in the various branches of learning as is contemplated in the several charters of each of the institutions hereby united ; and more particularly including a four years' course of studies, similar to such as are generally taught in other colleges and not inferior to that recently taught in said University of Vermont ; and in addition to that which is usually taught in other colleges, the instruction in this institution shall include such enlarged facilities, and extended scope and variety in the study of those branches which relate to military tactics, agriculture and the mechanic arts, as shall render the whole instruction in conformity with said Act of Congress, as well as with the several charters aforesaid."

Section II of the Charter provides that, for the purpose of receiving property by gift, grant, bequest or otherwise, and for certain other purposes therein specified, each of the original corporations shall be deemed and treated as having continued in life.

Gifts and bequests may therefore be made to (1) the University of Vermont, (2) The Vermont Agricultural College, (3) The University of Vermont and State Agricultural College.

By the provisions of

"An act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of an Act of Congress approved July second, eighteen hundred and sixty-two," the institution receives from the United States Treasury an annual appropriation to be applied "only to instruction in Agriculture, the Mechanic Arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

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GENERAL STATEMENT OF INSTRUCTION

Instruction is given in the University in

I. The Department of Arts, which embraces

1. The usual Classical course in Languages, ancient and modern, Mathematics, Physical Science, Mental, Moral and Political Philosophy, Rhetoric, Literature and History, leading to the degree of *Bachelor of Arts* ;

2. The Literary-Scientific course, in which the studies of the Classical course are pursued with the exception of Greek, and which leads to the degree of *Bachelor of Philosophy*.

II. The Scientific Departments, embracing the studies required (1) by the Morrill Act of 1862, which provides that instruction be given not only in "Classical and other Scientific studies," but especially in "branches of learning relating to Agriculture and the Mechanic Arts ;" and (2) by the Endowment Act of 1890, which provides for instruction in "Agriculture, the Mechanic Arts, the English Language, and the various branches of Mathematical, Physical, Natural and Economic Science, with special reference to their applications in the industries of life."

These Departments are :

1. The Department of Engineering, which includes (a) Civil and Sanitary Engineering; (b) Electrical Engineering; (c) Mechanical Engineering.

2. The Department of Chemistry.

3. The Department of Agriculture.

The degree in each case is *Bachelor of Science* ; see Index, *Degrees*.

III. The Department of Medicine, leading to the degree of *Doctor of Medicine*.

ADMISSION

Candidates for admission to the University must produce satisfactory testimonials of good moral character and must be at least fifteen years of age.

Students coming from another college must present certificates of regular dismissal from the institution they have left, and furnish satisfactory evidence of proficiency in all the studies—or their equivalents—which have been pursued by the class they propose to enter. For admission to an advanced class, a corresponding increase of age is required, and a thorough knowledge of all the studies which have been pursued by the students of the same class.

Young women are admitted to all courses in Arts and Science upon the same conditions as young men. They are required to room and board in families approved by the Faculty.

REQUIREMENTS FOR ADMISSION TO THE CLASSICAL DEPARTMENT

Greek. (1) Greek Grammar, including Prosody; (2) Xenophon's *Anabasis*, four books; (3) Homer's *Iliad*, three books; (4) Woodruff's *Greek Prose Composition*, or prose work based upon the Xenophon read in class; (5) Translation at sight.

Latin. (1) Latin Grammar, including Prosody; (2) Cæsar, four books, or *First Latin Readings* by Arrowsmith and Whicher; (3) Cicero, six orations including that for the *Manilian Law*; (4) Virgil, six books of the *Aeneid* and the *Eclogues* [or, in place of the *Eclogues*, 1200 lines of Ovid]; (5) *Prose Composition*, forty lessons; (6) Translation at sight.

In the case of Latin and Greek authors substitutes will be accepted if full equivalents for the work here prescribed.

Teachers are urgently requested to give their pupils practice in reading at sight. They are also urged to have their pupils read aloud in both Greek and Latin as much as possible, that the ear may be

trained to the sound of the language, and that the words may gradually come to convey a meaning to the pupil's mind immediately and not through their English equivalents.

In the pronunciation of Greek, the rules of Hadley and Allen's Grammar, pp. 4, 5, 7, should be followed. The "Roman" method of pronouncing Latin is used in the class room.

Mathematics. (1) Arithmetic, including the metric system; (2) Algebra, through Quadratic Equations; (3) Plane Geometry.

English. (1) English Grammar; (2) Orthoepey; (3) English Composition, to be based for 1899 upon the following works:

Shakspeare's Macbeth; Milton's Lycidas, Comus, L'Allegro, Il Penseroso; Pope's Iliad, i, vi, xxii, xxiv; the Sir Roger de Coverley Papers in the Spectator; Goldsmith's Vicar of Wakefield; Coleridge's Ancient Mariner; De Quincey's Flight of a Tartar Tribe; Cooper's Last of the Mohicans; Tennyson's Princess; Hawthorne's House of the Seven Gables.

For 1900 upon the following: Shakspeare's Merchant of Venice; Milton's Paradise Lost, Books i and ii; The Sir Roger de Coverley Papers in the Spectator; Goldsmith's Vicar of Wakefield; Coleridge's Ancient Mariner; Scott's Ivanhoe; Cooper's Last of the Mohicans; Macaulay's Essay on Addison; Lowell's Vision of Sir Launfal. George Eliot's Silas Marner.

Geography. Ancient and Modern.

History. (1) Ancient and Classical, down to the Christian Era. Myers' Outlines is suggested as a text-book. (2) English and American; a rapid survey of the chief periods and events. Montgomery's histories are suggested as text-books.

LITERARY-SCIENTIFIC COURSE

The requirements for admission to the Literary-Scientific course are the same as for the Classical course, except that in place of Greek an equivalent in French or German will be required.

Requirements in French. (1) Proficiency in the elements of French Grammar, implying familiarity with inflection (particular attention being given to irregular verbs) and the essentials of French syntax ; (2) the ability to translate ordinary French prose at sight. This should be gained by reading, concurrently with the grammar work, at least six hundred duodecimo pages of standard French literature ; (3) The ability to translate easy English sentences into French, to pronounce French, and to recognize French words and phrases when uttered. (4) An elementary knowledge of the history of French literature, more particularly during the present century. This requirement can be met by a careful reading of Well's Modern French Literature. [Roberts Brothers, Boston.]

The amount of preparatory work required in French may be indicated by the following books: Grandgent's Short French Grammar, and French Lessons and Exercises (High School ed.) About one hundred pages of some French Reader. Halévy's l'Abbé Constantin ; Daudet's Contes choisis, including la Belle Nivernaise (Cameron's ed.) Labiche et Martin's le Voyage de Monsieur Perrichon or Bornier's la Fille de Roland. A novel by Victor Hugo, George Sand, or other standard author.

Full equivalents for the above works will be accepted, but in no case should the time given to French be less than five recitations a week for two years.

Requirements in German. The following courses are suggested to those who intend to offer German as a substitute for Greek :

First Year. Joynes-Meissner German Grammar and Brandt's Reader ; the latter to be followed by as much as can be read of simple works like the Märchen of Andersen, Keller's Dietegen, or Auerbach's Brigitta. *Second Year.* The third part of the same grammar with selections from the Gedichte of Goethe, Schiller and Heine ; Schiller's Jungfrau von Orleans and Heine's Harzreise.

In both of these courses the student should be given daily exercises (oral and written) in composition, in the first year translating

into German detached sentences, and in the second, simple, connected English prose. Constant dictations in German, as a training to the ear, are recommended. A good collection of phrases is to be found in the Meisterschaft System of Rosenthal, and in Meissner's German Conversation.

The entrance examinations, which will be both oral and written, will presuppose a thorough familiarity with the principles and the practice of pronunciation, with the declension of nouns and adjectives, the conjugation of the regular and irregular verbs, and the essentials of German syntax.

Students who offer French or German for admission will not be allowed to take the elementary work in those languages, and then reckon it as a required study. They may, however, take advanced work and have it counted. Literary-Scientific students who enter with deficiencies in French or German may make up such deficiencies by taking the elementary work in those languages *in addition* to the required number of studies.

For the conditions of admission to the Departments of Engineering, Chemistry and Medicine, consult the fuller statements of these departments.

Examinations for admission will be held in the large hall of the Science Building (second story) at the close and at the opening of each college year. See Calendar. The results of examinations will be reported immediately to the Committee on Admission, who will furnish the successful candidates with Certificates of Approval to be presented by them to the President.

ADMISSION BY CERTIFICATE

Candidates will be admitted to any of the above Departments *without examination*, in case they bring Certificates of Graduation from Preparatory Schools whose Courses of Study fully meet the above requirements. If the certificate is defective in respect to any required study, the student will be examined in that study. Certificates must

be made out on blank forms furnished by the Registrar. Students admitted by certificate will be regarded as being on probation the first half-year.

SPECIAL EXAMINATION IN ENGLISH

Every candidate for admission to any undergraduate department of the University will be required, at the time of entrance, to give evidence that he can write the English Language in a legible hand and with correctness in spelling, punctuation and construction. And no student will be admitted as a full matriculant until he has satisfied his examiners by a written test that he has read with care and intelligence the English works named in the "Requirements for Admission" (p. 16) or their equivalents.

Students admitted conditionally will be allowed one year in which to make up all deficiencies. The first two weeks in June are appointed for examination in entrance delinquencies. If all conditions are not removed by October 1 of the student's second year, he will be liable to classification in the catalogue as a Special Student.

ADMISSION OF SPECIAL STUDENTS.

Persons of suitable age and attainments may, by special permission of the Faculty and by the payment of a specified fee, pursue certain studies in connection with the regular college classes without becoming matriculate members of the University. The classes which are open to such students, with the conditions of admission, will be made known upon application to the President. Special Students must satisfy the Committee on Admission as to their ability to prosecute successfully the branches which they desire to pursue, and also obtain from the President an order for their admission to the University. They will be registered and enrolled in the same manner as regular students, and from the time of their admission will be entitled to the privileges, and subject to all the regulations of the University, but cannot be candidates for a degree.

ENROLMENT

All students are required to enroll themselves in their respective courses of study at the opening of the Annual Session.

On Wednesday, the first day of the session, from 9 A. M. to 12 M., and from 2 to 5 P. M., enrolment cards will be furnished at the room of the Committee on Studies. These cards are to be immediately filled out and submitted to the Committee for their endorsement. When so endorsed they are to be presented by the students to the instructors for their signatures. The cards must be returned to the Committee, properly signed, by the second Wednesday of the Term.

Instructors will make up their class lists only from the endorsed cards presented by the students.

Absences will be counted from the first exercises of the studies chosen.

No changes of studies, except such as are sanctioned by the Committee, will be allowed.

Decision regarding the choice of studies should be reached before the opening of the Annual Session. For this purpose, Instructors will gladly advise with students at any time.

REGISTRATION

Students intending to enter the University should send their Entrance Certificates or other credentials to the Committee on Admission not later than the week preceding the opening of the Fall term. They will obtain from the Committee Certificates of Admission, which are to be taken, first, to the President for his signature; then to the Treasurer to get his receipt for the Registration fee (see p. 79). Students are then entitled to enter their names in the Register, and so become regular members of the University.

COURSES OF INSTRUCTION*

[**Letters in heavy face type** signify : **R**, Required; **E**, Elective; **I, II, III, IV**, first, second, third and fourth year of the course; **A**, first half-year; **B**, second half-year. **Figures** in the same type indicate the **number of hours**,† or exercises, per week.]

GREEK

1. Lysias, Selections.—Plato, Apology and Crito.—Homer, Odyssey, four books.—Prose Composition, based upon the prose read in the course. **RI4**.
2. Euripides, Iphigenia in Tauris.—Demosthenes, Olynthiacs.—Aristophanes, Clouds.—Sophocles, Oedipus Tyrannus.—Prose Composition, based upon the prose read in the course. **EII3**.
3. Greek Private and Social Life.—The private life of the Greeks will be treated in lectures. Collateral reading and subjects for investigation will be assigned. The aim of the course is to present a picture of the Greeks in their daily life. **EIII&IV (II by special permission) 2**.
4. The History of Greek Literature.—The rise and development of the various forms of Greek literature will be treated briefly in lectures. The aim of the course is to encourage the students to read, both in the class and privately, selections from as wide a field of Greek literature as possible. **EIII&IV3**.

[Courses 3 and 4 will be given in alternate years; course 4 in 1899-1900.]

* When not otherwise specified, Courses run through the year.

† The "hour" is fifty minutes, except in laboratory work, where it is an hour and fifty minutes.

5. Aeschines. Against Ctesiphon.—Demosthenes, On the Crown.—Aeschylus, Seven Against Thebes.—Sophocles, Antigone.—Aristophanes, Frogs. **EIII&IV3.**

PROFESSOR HOWES

LATIN

1. Livy, books i and xxi or xxii.—Tacitus, Germania and Agricola.—Plautus, Trinummus and Captivi.—Terence, Andria.—Prose Composition. **RI4.**
2. Cicero, Tusculan Disputations, book i.—Horace, Odes, Epistles and Satires.—Catullus. **EII3.**
3. Quintilian, books x and xii.—Cicero, Letters.—Juvenal.—Persius. **EIII3.**
4. Pliny, Letters.—Seneca, Essays and Medea.—Lucretius.—March's Latin Hymns.—Allen's Early Latin. **EIV3.**

PROFESSOR GOODRICH

ENGLISH

1. Rhetoric, English Composition, and Etymology.—Elementary course.—Text-books, Hill's Principles of Rhetoric, and Trench on the Study of Words. **RI2.**
2. Criticism and Composition.—Study of Invention and of selected prose masterpieces.—Text-books, Genung's Practical Rhetoric and Rhetorical Analysis.—Constant drill in composition.—Weekly lectures upon the history of English literature, with Stopford Brooke's Primer as a manual. **RII3.**
3. English Literature from the Restoration to the present day.—Lectures and seminary work upon the poets and important literary movements of the last two centuries.—Lec-

tures upon the history and principles of English Versification. **E3.**

4. Anglo-Saxon.—Training in early linguistic forms and in development of English.—Literary study of Anglo-Saxon Poetry.—Text-book, Smith's Anglo-Saxon Grammar. **EA2.**
5. Chaucer.—Supplementary to 4.—Further study of linguistic development.—Chaucer's poetry.—Collateral reading in the works of his contemporaries. **EB2.**
6. Shakspeare and his Contemporaries.—Elizabethan drama, lectures and collateral reading. Literary study and textual interpretation of selected plays of Shakspeare.—Text-books, the Globe Shakspeare, Rolfe's editions, and Dowden's Primer. A study of the non-dramatic poetry of the period will complete the course. **E3.**
7. American Literature.—The greatest writers of the country and century will be studied. Lectures, reports, and collateral reading. Text-book, Beers' Outline Sketch of American Literature. **E2.**
8. Argumentation.—Lectures upon the history of oratory and the principles of debate. Practice in brief-drawing and discussion. **RIII1.**

[Courses 3, 4 and 5 will be given in 1898-99; courses 6 and 7 in 1899-1900. This alternation will enable the student, by a proper choice of electives, to trace through its entire history the linguistic growth and the literary development of English.]

Members of the Freshman and Sophomore classes are required to deliver two selected declamations during the year. Juniors follow a course in argumentation, as prescribed above (8). Seniors are required to deliver two original orations and to write two essays during the year.

PROFESSOR TUPPER
MR. DOTEN, *Elocution*
MR. ENO, *Themes*

FRENCH

1. **Elementary Course.**—Grammar, pronunciation, dictation and composition. Translation of selections from modern writers. George Sand's *la Mare au diable*, Bornier's *la Fille de Roland*, and Feuillet's *le Roman d'un jeune homme pauvre* are read entire. Academic students are required to read outside of the class-room Well's *Modern French Literature*. **I4.**

[Required of Literary-Scientific Freshmen who are conditioned in modern languages, and of Scientific Freshmen who do not present the entrance requirements in German. Elective for Agricultural students, and for Classical Sophomores and Juniors; for Classical Seniors in 1899—1900, but not thereafter.]

2. **Scientific French.**—Advanced grammar and composition. The latest issue of *l'Année scientifique et industrielle* is read in class. The course may be taken two years. **I3.**

[Required of Scientific Freshmen who present the entrance requirements in French. Elective for others.]

3. **A General Introduction to the History of French Literature.**—
A. Advanced grammar and composition. **B.** Duval's *Histoire de la littérature française* is studied outside of the class-room. Select specimens of the drama from Corneille to the present are read in class. **I3.**

[Required of Literary-Scientific students who present the entrance requirements in French, but not in German, and for Academic students who have taken Course 1.]

4. **The Evolution of the Contemporary Novel in France.**—**A.** Studies and illustrative readings in the origins of the contemporary novel in the prose fiction of the 17th, 18th and early 19th centuries. **B.** Contemporary novelists, Daudet, Zola, Pierre Loti, Paul Bourget, and other living writers. Lectures and theses. **E2.**

5. **The French Poets of the Nineteenth Century.**—**A.** Introductory survey of the history of Lyric Poetry in France from 1550 to 1800. The greatest representatives of the Romantic School, Lamartine, DeVigny, Victor Hugo, Alfred de Musset, and others, are studied. **B.** The contemporary Parnassian School as represented by Leconte de Lisle, Coppée, Sully Prudhomme, Heredia, and other living poets. Lectures and theses. **E2.**
6. **Representative French Essayists.**—**A.** Montaigne.—Lectures on the learning and literature of the French Renaissance; **B.** Pascal.—Lectures on Jansenism and the French moralists of the age of Louis XIV; **A.** Voltaire.—Lectures on the literary preparation for the French Revolution; **B.** Sainte Beuve.—Lectures on recent and contemporary literary criticism in France. **E1.**

[This course covers the 16th, 17th, 18th and 19th centuries, and occupies two years.]

7. **Old French Philology and Literature.**
- a. Constans' *Chrestomathie de l'ancien Français* or Toynbee's *Specimens of Old French*, and Brachet and Toynbee's *Historical Grammar* are used as text-books. **E1.**
- b. Studies in the origin and development of Old French Epic Poetry. **A.** The Carolingian or national cycle of epics. The *Chanson de Roland* is read in a modern French version. **B.** The Arthurian or courtly cycle of epics. The *Percival* is read. **E1.**

[Courses 4 and 5 are given in alternate years, and are elective for students who have completed 3. Course 4 will be given in 1899—1900. Course 6 is designed for students who after completing 3 wish to give but one hour a week to French, but may be added to 4 or 5. Candidates for Honors in French are required to take either 4 or 5, and 6 for two years, in addition to 7 a or 7 b. They must also present a thesis on some topic connected with the course selected.]

A student in the department of Arts who begins French or German in college is required to continue the study a second year.]

PROFESSOR KITCHIN

ITALIAN AND SPANISH

[Whenever ten or more students desire it, a course in either Italian or Spanish will be given. Both courses will not be offered the same year, but either is elective for students who have had at least one year of French in college. The course in Spanish is offered for 1899—1900.]

1. Italian.

- a. Elementary Course.—Grammar, pronunciation, memorizing short poems, and translation from De Amicis : Cuore, and Pellico : Francesca da Rimini. **A3.**
- b. Classic and Modern Italian.—Dante : La Vita Nuova, entire ; La Divina Commedia, selected cantos. Verga : La Cavalleria Rusticana ed altre novelle. Outside of class students will read Garnett's History of Italian Literature. **B3.**

2. Spanish.

- a. Elementary Course.—Grammatical principles, pronunciation, and translation of easy literary and scientific prose ; memorizing short poems. Estébanez : Un Drama Nuevo. **A3.**
- b. Classic and Modern Spanish.—Cervantes : Don Quixote, selected chapters. Galdós : Doña Perfecta. Students will read Kelly's History of Spanish Literature. **B3.**

PROFESSOR KITCHIN

GERMAN

1. Elementary Course.—Joynes-Meissner German Grammar with written exercises ; Brandt's German Reader ; Gedichte ; Goethe, Schiller, Heine. Exercises in conversation based on the systems of Rosenthal and Meissner.

[Alternative with French : for Classical Sophomores, and, by special permission for Literary-Scientific Freshmen who present the French required on p. 18 ; also to Juniors.]

2. Composition; Joynes-Meissner (part third) with written exercises and exercises in conversation. Gedichte, Goethe and Schiller (continuation, longer poems); Heine's Reisebilder; Goethe's Faust (first part) with introductory lectures.
3.
 - a. Lessing's Laokoon and Schopenhauer's Die beiden Grundprobleme der Ethik will be read in the class. Collateral reading; Lessing's Emilia Galotti and Minna von Barnhelm.
 - b. Lectures. Outlines of German literature in the classic period.

PROFESSOR HUFF

- 1*. Elementary Course for Scientific students.—Joynes-Meissner German Grammar with written exercises; Brandt's German Reader; German Scientific Reading, Brandt and Day. Exercises in conversation (Rosenthal).

MR. ENO

[See note at end of French courses.]

PHILOSOPHY

1. Elementary Course.—Brief general introduction to philosophy, in lectures.—Logic; text-book, Minto's Logic Inductive and Deductive.—Ethics; text-book, Murray's Introduction to Ethics. **RIII3.**
2. Advanced Course.—Psychology; lectures and Baldwin's Elements of Psychology.—Fundamental problems of philosophy; lectures, and Hibben's The Problems of Philosophy.—Theism; text-book, Flint's Theism. **EIV3.**
3. History of Philosophy.—Lectures and Weber's History of Philosophy. **EIV3.**
4. Fine Art.—Lectures and text-books; Kedney's Hegel's Aesthetics, and G. Baldwin Brown's The Fine Arts. **EIVB2.**

PROFESSOR TORREY

HISTORY

1. General History : Under this head Mediæval and Modern history will be covered in three courses. These will be given in successive years, providing thus a three-years course of consecutive historical study. Collateral reading, topical investigations, and theses will be required. **E3.**
 - a. Mediæval History, from the Fall of Rome to the French Revolution. Study of mediæval institutions, migrations, feudalism, Holy Roman Empire, papacy, crusades, towns, rise of European states, Renaissance and Reformation, colonial expansion.
 - b. Modern European History from the French Revolution to the present. Study of the Revolution, its causes and effects, Napoleonic wars, readjustment of Europe, Germany, Russia, industrial revolution, political and social condition of Europe.
 - c. American History, North and South America. Colonial period, constitutions and society. Conflict between France and England, Revolution, federal union, parties, slavery, civil war, reconstruction, social condition. The emphasis upon social development.
- [Course b will be given in 1899-1900.]
2. French Revolution : Seminar course ; detailed study of the causes, principles and consequences of the revolutionary movement in Europe. Investigation will be the method, with presentation of results before the class ; supplementary lectures. A working knowledge of French will be indispensable. **EIII&IV3.**
3. Parliamentary Government : Seminar course in the detailed study of the origin and development of the parliamentary system of government from Magna Charta to the cabinet. Methods same as in Course 2. **EIII&IV3.**

PROFESSOR EMERSON

SOCIOLOGY

1. **Social Theories :** Examination of various social schemes ; Plato's Republic, Cicero's De Republica, Augustine's Civitas Dei, More's Utopia. Modern theories ; Comte, Spencer, Kidd, Gumpowicz, Fouillée, Giddings, collectivism, communism, socialism.
2. **Industrial Era :** a study of modern society under the phase of industrialism. Industrial revolution, inventions, factory, transportation, trade, the modern city. Reaction upon state, culture, religion ; consequent reconstruction of society.
3. **Social Institutions :** an historical investigation of their origin and development ; primitive and ancient society, family, slavery, property, marriage, civil government, law, rights, classes, religion, philosophy, agriculture, industry, commerce. Lectures, with extensive collateral reading, research and theses. **EIII&IV.**

[The above courses will be given in successive years.]

PROFESSOR EMERSON

POLITICAL SCIENCE

1. **Political Economy.**—Text-book, Hadley's Economics. Lectures and discussions. **EIII3.**
2. **Constitutional History :** Cooley's U. S. Constitution.—Comparative constitutional law ; lectures and collateral readings. International law ; Lawrence's Principles of International Law the basis of instruction.—Political Economy applied to open questions by lectures and discussions. **EIV2.**

PRESIDENT BUCKHAM

MATHEMATICS

1. a. Solid and Spherical Geometry.

DR. BULLARD

- b. Algebra.—Arithmetical and Geometrical Progression, Convergence and Summation of Series, Binomial and Exponential Theorems, Logarithms, and a brief introduction to the Theory of Equations.
- c. Plane Trigonometry. **RI5**

PROFESSOR DANIELS

- 1*. a. Algebra.—Arithmetical and Geometrical Progression, Permutations and Combinations, Probability, Binomial and Exponential Theorems, Logarithms, Convergence and Summation of Series, and introduction to Theory of Equations. **I5.**
- b. Plane and Analytical Trigonometry. **I5.**
- c. Analytical Geometry.—Plane Analytical Geometry, Equations of the Second Degree, Solid Analytical Geometry. **I5.**
- 2*. a. Differential Calculus. **II4.**
- b. Integral Calculus and Differential Equations. **II4.**
- c. Spherical Trigonometry and applications to Practical Astronomy. **III1.**

MR. BUTTERFIELD

*For Students in the Engineering Department.

2. Review of Analytical Trigonometry, followed by Analytic Geometry, and a short course in Differential and Integral Calculus ; lectures. **EII4.**
3. a. Differential Calculus.
- b. Integral Calculus and Differential Equations. Lectures. **E3.**
4. a. Methods used in the solution of Problems of Construction in Elementary Geometry.
- b. Introduction to modern Projective Geometry. Lectures. **E3.**
5. Functions of a Complex Variable, and Elliptic Functions ; ele-

mentary. Text-book, Durège, with supplementary lectures, chiefly on Conform Representation. **E3.**

[Courses 3, 4 and 5 will not be given in 1898-99.]

PROFESSOR DANIELS

PHYSICS

1. General Physics.—Mechanics, properties of matter, heat, sound, light, electricity and magnetism. Text-book, Ames' Theory of Physics. Lectures and laboratory work. **4.**

[Required of Chemical and Engineering Sophomores. Those electing this course should be familiar with the elements of Trigonometry.]

2. Light.—Preston's Theory of Light, and Basset's Physical Optics used as basis of lectures. Lectures and laboratory work. **2.**
3. Heat.—Maxwell's or Preston's Heat and Zeuner's Thermodynamik used as basis of lectures. Lectures and laboratory work. **3.**
4. Electricity and Magnetism —Emlage's or Nipher's Electricity and Magnetism used as text-book. Lectures and laboratory work. **4.**
5. Mathematical Physics.—Methods of solving the differential equations of physics with application to problems in mechanics, sound, heat and electricity. Text-books used as basis of lectures: Forsythe's Differential Equations, Rieman's Partielle Differentialgleichungen, Walton's Collection of Problems in Mechanics, Donkin's Acoustics, and Fourier's Analytical Theory of Heat. Lectures. **4.**

[Course 5 will not be given in 1898-99.]

PROFESSOR SLOCUM

NATURAL SCIENCES

1. **Physiology and Hygiene.**—A course of informal, practical lectures upon the principles of Hygiene and Sanitary Science, including so much of Anatomy and Physiology as is necessary to a proper understanding of these principles. **RI1.**
2. **Physiology, Advanced Course.**—Recitations from Martin's Human Body, supplemented by lectures, demonstrations, and a full series of Auzoux and Deyrolle Models. **EIII&IV2.**
3. **Animal Biology, General Course.**—The aim of this course is to train the student in methods of observation and reasoning as well as in the acquisition of facts. The course consists of two lectures and two laboratory sessions each week during the second half-year. In both lecture-room and laboratory a sufficient number of typical forms are studied to give the student a general survey of the animal kingdom. **EIII&IVB4.***
4. **Animal Biology, Advanced Course.**—This is designed for those students only, who during the previous course have developed so much interest in the subject and so much success in investigation as to make it advisable for them to continue the study in special lines. A few forms only are thoroughly investigated. A limited portion of the time may be given to systematic work upon some group of animals. In both these courses full and accurate notes of the work done, illustrated by careful sketches, are required. **EIV3-6.**

The Biological Laboratories are well equipped with compound and dissecting microscopes, so that usually each student is supplied with both, which he is free to use during his course. Microtomes, and other needed laboratory apparatus, are also furnished.

*The "hour" in laboratory work is equal to an hour and fifty minutes.

5. Entomology.—Lectures and laboratory course in structural and systematic entomology, with special reference to insects which are injurious to vegetation. **B2.**
6. Anthropology.—Lectures and collateral reading. A general survey of the ethnological, social, moral and intellectual characteristics of the principal races of the world is followed by a discussion of the origin and development of laws, government, arts, industries, language, literature and religious systems. So far as practicable the lectures are illustrated by maps, plates, photographs and specimens. **EIII&IVA3.**
7. Geology.—The course in Geology is intended primarily to meet the wants of those who, though not expecting to specialize in the subject, yet desire such knowledge of its facts and principles as every educated person should possess. About one-half of the course consists of recitations, Scott's Introduction to Geology being used as a text-book. The remainder of the time is devoted to lectures upon Historical Geology. These are illustrated by an extensive series of fossils typical of each of the great geological subdivisions. So far as practicable, excursions are taken to interesting localities in the vicinity of the College. **EIII&IVB3.**

PROFESSOR PERKINS

8. Mineralogy and Crystallography.—Lectures and laboratory work. Text-books ; Williams' Elements of Crystallography and Dana's Manual of Mineralogy. **A3.**

[Required of Chemical and Civil Engineering students ; open to Classical and Literary-Scientific students who have taken Chemistry 1]

ASSISTANT PROFESSOR STEARNS

BOTANY

1. **Elements of Biology of Plants.**—A study of typical species of plants with reference to structure, physiology, development and relationship. Two lectures or recitations and two laboratory exercises per week. The Strasburger Text-book of Botany and collateral readings. **II&IIA4.**
2. **Introduction to Systematic Botany.**—Comparative study of selected types of ferns and seed-plants with reference to their relationships and to the determination of species; field work upon some special group of plants during the spring. The Strasburger Text-book of Botany and Gray's Manual. The Britton-Brown Flora and other works used for reference and collateral reading. **II&IIB3.**
3. **Morphology and Embryology.**—This course is to a certain degree a continuation of 1, and is open only to those who have taken that course. It includes a more critical study of the plant cell together with the structure and development of the tissues of the higher plants and the elements of their embryology. Methods of imbedding, section-cutting and staining. **III&IVA3**
4. **Plant Physiology.**—Laboratory experiments, collateral reading, investigation of a special subject and preparation of a thesis. **III&IVB3.**
5. **Plant Pathology.**—A study of the nature and causes of plant diseases, including an introduction to the methods of bacteriology and a systematic consideration of parasitic fungi. Lectures, collateral reading, laboratory and field work. **III&IVA3.**

[Given every other year; omitted in 1898-99.]

6. **Special Investigation.**—Any student who is prepared may undertake research work upon a special topic in preparation for a graduation thesis or as a candidate for senior honors in botany. In exceptional cases similar work may be undertaken for credit toward a degree. The nature and extent of such work is arranged individually.

PROFESSOR JONES AND MR. ORTON

HORTICULTURE

1. Propagation, nursery management, pruning, horticultural classification. **RIIB3.**
2. Pomology, large and small fruits, with field and laboratory work and excursions to points of horticultural interest. **RIIIA3.**
3. Landscape Gardening: the philosophy of art as applied to landscape study, with a consideration of the history of landscape art and a study of modern works. Lectures, illustrations, readings and field work. **EA2.**
4. Forestry: The botany of native forest trees, with a study of forest management. **EB2.**
5. Special Electives are offered to individual students in various lines of horticulture, such as Evolution, Landscape Gardening, Pomology, and the study of leading horticultural works in French and German.

PROFESSOR WAUGH

ENGINEERING

DRAWING

1. a. Mechanical drawing and lettering. Tracy's Elements of Mechanical Drawing; Reinhardt's Free Hand Lettering. **IA&B2.***

*In Drawing and Laboratory Work, all "hours" are of one hour and 50 minutes.

- b. Detail working drawings of machines, and construction of gear teeth. **IIA1,B2.**
- c. Analysis of valve gears, and steam engine details. **IIIA3,B2.**
- 2. a. Elementary projections and descriptive geometry. **IB2.**
b. Descriptive geometry and isometric projections. **IIA3.**
c. Stereotomy. **IIB2.**
- 3. a. Topographical drawing, pen and colored topography. **IB1.**
b. Map construction. **IIB2.**
c. Mapping surveys. **IIIA4.**
- 4. a. Structural drawing. **IVA4.**
b. Problems in designs. **IVB3.**

PROFESSORS BARBOUR, VOTEY and AYER and MR. SMITH

MECHANICS.

- 1. a. Force and Energy.—Representation and measurement of forces, their composition and resolution, equilibrium, velocity and acceleration, mechanical work, centrifugal force, energy of rotating bodies, moment of inertia, impact, centre of gravity Lanza's Mechanics. **IIIA4.**
b. Elasticity and Resistance of materials, theory of flexure and torsion, shear and bending moment, elastic limit and working stresses. **IIIA4.**
c. Determination of Stresses in roof and bridge trusses, analytical and graphical methods. **III4.**
- 2. Stresses in Trusses from wheel loads, graphical statics, study of arches and retaining walls, designing of plate girders and trusses. Johnson's Framed Structures. **IV5.**

PROFESSOR BARBOUR

3.
 - a. **Hydraulics.**—Pressure of water on plane and curved surfaces, centre of pressure, theoretical and actual discharge through orifices and weirs. Flow of water in long pipes, reaction and impact of water, laboratory and field measurement. Merriman's Hydraulics. **IVA4.**
 - b. **Laboratory and Field Work.** **IVB1.**

MR. BUTTERFIELD

CIVIL ENGINEERING

1.
 - a. **Surveying.**—Use of Instruments, compass, level and transit ; land surveying ; recitations and field work. Raymond's Surveying. **B1**
 - b. **Summer School of Surveying.**—Land surveying, traversing, leveling and topographical surveying. One month in summer vacation.
2.
 - a. **Computing and plotting work of Summer School.** **A2.**
 - b. **City Surveying.**—Solar compass and transit ; recitations, lectures and field work. **B1.**
 - c. **Summer School of Surveying.**—Geodetic, hydrographic and topographical surveying. One month in summer vacation.
3.
 - a. **Geodetic Surveying.** **A2.**
 - b. **Railroad Surveying.**—Recitations and field work. Searles' Field Engineering. **B2.**

PROFESSOR VOTEY and MR. SMITH

ENGINEERING CONSTRUCTION

1. **Materials of construction, their properties, preparation and use.**
 - a. **Stone, brick, lime, cement, mortar, concrete and masonry.** Recitations, lectures and laboratory work. **A2.**

- b. Timber, iron, steel and other metals. Recitations, lectures and laboratory work. Johnson's Materials of Construction. **B2.**
- 2. a. Construction of roads, streets and pavements. Lectures, recitations, field and laboratory work. Byrne's Highway Construction. **B2.**
- b. Foundations of structures on land and in water. Lectures. **A2.**
- c. River improvements; harbor and canal construction; railway construction, equipment and management. Lectures. **B1.**
- 3. a. Contracts and specifications. Lectures and recitations. Johnson's Contracts and Specifications. **B1.**

PROFESSOR VOTEY and MR. SMITH

SANITARY ENGINEERING

Water supply, sewerage, plumbing, heating and ventilation.
Lectures and laboratory work. **A3.**

PROFESSOR VOTEY

MECHANICAL ENGINEERING

- 1. a. Elementary Mechanism.—The Transmission of Motion by rolling and sliding contact, by linkages, and by wrapping connectors; trains of mechanism; aggregate combinations of mechanism. Stahl and Woods' Elementary Mechanism. **IIA2.**
- b. Gearing and Machine Tools.—Theory and construction of correct gear tooth curves. Construction of the driving and feed mechanisms of standard machine tools. Stahl and Woods' Elementary Mechanism; lecture notes. **IIB3.**

2. a. **Steam Engineering.**—Analysis of plain slide valve motions by the aid of the Zeuner and Bilgram diagrams ; link motions and radial reversing gears ; double and detachment valve gears. Construction and use of the steam engine indicator. First and second laws of thermodynamics ; laws of perfect gases and saturated vapors ; elementary theory of the heat engine. Peabody's Valve Gears for Steam Engines; Ewing's The Steam Engine ; lecture notes. **IIIA4.**
- b. **Steam Engineering.**—Theory and practice of the steam engine. Construction and care of steam boilers. Pumps and pumping engines. Theory and construction of the injector. Ewing's The Steam Engine ; Peabody and Miller's Steam Boilers; lecture notes. **IIIB4.**
3. a. **Dynamics of Machines.**—Analysis and design of steam engine governors and fly wheels. Theory and design of multiple-expansion steam engines ; lecture notes. **IVA4.**
- b. **Motors and the Transmission of Power.**—Gas, oil and hot-air engines ; hydraulic motors; rope driving ; measurement of power ; use of compressed air ; mechanical refrigeration. Clark's The Gas and Oil Engine; Flather's Rope Driving ; Flather's Dynamometers ; Richards' Compressed Air ; lecture notes. **IVB4**
- c. **Machine Design.**—Application of mechanics to the design of steam boilers and power transmission machinery ; steam engine design. Lecture notes; Kent's Mechanical Engineers' Pocket Book. **IVA&B3.**
- 4.* **Machinery and Motors.**—Elementary study of steam engines, boilers, pumps and power transmission machinery. Lectures. **IVA2.**

*[Required of Seniors in the departments of Chemistry and Civil Engineering.]

5. a. **Mechanical Engineering Laboratory.**—Determination of the errors of thermometers, steam gauges, planimeters and indicator springs; steam engine tests; tests of steam calorimeters. **IIIB2.**
- b. **Mechanical Engineering Laboratory.**—Tests of steam boilers and pumps, and the measurement of power. **IVB2.**

PROFESSOR AYER

SHOP-WORK

1. **Carpentry. B2.**
2. a. **Wood turning and pattern making. A2.**
b. **Pattern making, moulding and founding. B2.**
3. a. **Forging of iron and steel. A3.**
b. **Chipping, filing and lathe work. B3.**
4. **Machine shop work. A&B3.**

MR. EATON

ELECTRICAL ENGINEERING

1. a. **Electrical Units and Fundamental Laws. December to mid-year. 2.**
b. **Electro-magnetism and electro-magnetic Induction. Houston & Kennelley's Electrical Engineering Leaflets. B2.**
2. a. **Dynamo-electric Machinery:—Theory of the Dynamo. A4.**
b. **Designing of Dynamos and Motors. Jackson's Electro-magnetism and Construction of Dynamos; Hawkins & Wallace, The Dynamo. B4.**
3. a. **Alternating Currents: a study of the laws governing alternating electro-motive forces when applied to circuits containing resistance, inductance or capacity; equations of energy; characteristics of alternators. A3.**

- b. **Multiphase Currents :** a study of two-phase and three-phase generators and motors ; rotary converters ; transformer designing. Jackson's Alternating Currents ; Steinmetz's A. C. Phenomena ; Fleming's The Transformer. **B2.**
- 4.
 - a. **Electric Railways and Power Transmission :** power stations, including discussion of sources of power, types of engines and water wheels, best arrangement and number of units, etc.; series-multiple controllers ; calculations of feeder systems designed to secure minimum cost and maximum efficiency. **A2.**
 - b. **Electric Lighting :** central station designing ; use of storage batteries, rotary converters and multiphase currents ; calculations to determine most suitable distributing system, having maps and other data provided. Electrometallurgy ; telephone and telegraph systems ; specifications. Crosby & Bell's Electric Railways ; Bell's Electric Transmission of Power ; Crocker's Electric Lighting ; Merrill's Specifications, and other reference books. **B2.**
- 5. **Electric Laboratory.**
 - a. Direct current dynamos and motors. **A&B3.**
 - b. Alternating current machinery and transformers. **A& 3.**
- 6. **Graduating Thesis :** A paper based on original research, with the approval and under the supervision of the instructor in charge. **B2.**
- 7. **Electric Motors :** A practical course on electrical machinery, for students not pursuing the electrical engineering course. The preparatory courses required are mathematics 1c and physics 1. **A2.**

PROFESSOR STORRS

CHEMISTRY

1. General Chemistry.
 - a. Lectures. **A&B2.**
 - b. Laboratory work.—Elementary experiments and elementary qualitative analysis. **A&B2.**
 2. Qualitative Analysis.—Advanced course ; laboratory work, with lectures and recitations. **A3.** Elementary quantitative analysis. **B3.**
 3. Quantitative Analysis.—Laboratory work and lectures, with class meetings for discussion of methods. One year or longer. **4.**
 4. Stoichiometry.—Lectures. **A2.**
 5. Industrial Chemistry.
 - a. Assaying.—Ores, furnace products, etc. **A3.**
 - b. Lectures.—Inspection of constructional plans of work, with occasional excursions to manufacturing establishments, when such may be made conveniently. **B2.**
 6. History of Chemistry.—Lectures. **B1.**
 7. Organic Chemistry.
 - a. Lectures.—Theory and synthesis of carbon compounds. **A&B2.**
 - b. Laboratory work.—Preparation of compounds, analyses, etc. **8.**
 - c. Commercial organic analysis.—Lectures. **B2.**
- [Courses 5b and 7a are given in alternate years.]
8. . Physiological Chemistry. **A2.**
 9. Physical Chemistry. **B2.**

Practical use of the Spectroscope is offered to students who are qualified for that order of work, at some convenient time during the four years.

PROFESSOR MERRILL, ASSISTANT PROFESSOR STEARNS, MR. WHITNEY
and DR. TORREY

AGRICULTURE

1. Soils, Tillage, Drainage, Fertilizers. King's The Soil; Roberts' The Fertility of the Land ; Lectures, recitations, collateral reading and theses. **RIIA5.**
2. Agricultural Grasses ; a study of their botanical relationships and economic values. **RIIB1.**
3. a. Stock Feeding ; animal nutrition, fodders and feeds, feeding standards and rations. Lectures, recitations, collateral reading and theses. **RIIA** till Jan. 4.
b. Dairying. Lectures, laboratory work and recitations. **12.**
[January session of the Dairy School.]
4. Stock Breeding, breeds of live stock. Miles' Stock Breeding. Lectures, recitations and laboratory work (scoring cattle.) **RIIB4.**
5. Philosophy of Evolution ; its practical demonstration and application in breeding and selecting farm and garden crops. Lectures. **RIII.** Elective to others having sufficient preparation.
6. Original investigation for theses ; laboratory and library research upon some subject pertaining to agriculture, botany, horticulture or veterinary science, under the direction of the instructor in charge. **IVA&B3.**

PROFESSORS HILLS, JONES AND WAUGH AND DR. RICH

VETERINARY SCIENCE

1. Comparative Anatomy of domestic animals. Strangeway's Anatomy. Lectures and recitations, **IIA2.**
2. Comparative Physiology of domestic animals. Kirk's Human Physiology. Lectures and recitations. **IIB3.**
3. Histology. Kirk's Human Physiology. Lectures and recitations. **IIIA2.**
4. Diseases of domestic animals ; theory and practice of veterinary medicine. Lectures, recitations and clinics. **IIIB3.**

DR. RICH

DEPARTMENT OF ARTS

FACULTY

MATTHEW H. BUCKHAM, D. D., President, *Political Science*.

HENRY A. P. TORREY, LL. D., Dean, *Intellectual and Moral Philosophy*.

GEORGE H. PERKINS, Ph. D., *Physiology, Geology, Anthropology*.

JOHN E. GOODRICH, D. D., *Latin*.

SAMUEL F. EMERSON, Ph. D., *History*.

NATHAN F. MERRILL, Ph. D., *Chemistry*.

ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.

LEWIS J. HUFF, A. M., *German*.

LEWIS R. JONES, Ph. B., *Botany*.

WILLIAM C KITCHIN, Ph. D., *French and Italian*.

FREDERICK TUPPER, JR., Ph. D., *Rhetoric and English*.

ALLISON WING SLOCUM, A. M., *Physics*.

GEORGE E. HOWES, Ph. D., *Greek*.

LIEUT. CHARLES J. BAILEY, A. M., *Military Science and Tactics*.

CARROLL W. DOTEN, Ph. B., *Elocution*.

WARREN G. BULLARD, Ph. D., *Mathematics*.

ARTHUR L. ENO, A. B., *English*.

REQUIRED AND ELECTIVE STUDIES

I. Candidates for the degree of A. B., after pursuing a required course of Greek, Latin, Mathematics, English and Hygiene through the Freshman year, are allowed to elect a certain number of their studies, the number increasing in the later years of the College course until the Senior year, when all studies, except those of the Military department, are elective. Each student is required to take such a number of Electives as will bring his total work up to fifteen recitation or lecture hours per week, not including those of Military Drill.

The abuse to which a system of perfectly free electives is liable is avoided by the requirement of a certain number of studies which are intended to secure some completeness and symmetry of discipline, while the number of electives permitted gives room for the development of special talents and the following out of individual predilections. The electives are offered in such a way as to permit extended study of any subject or group of subjects of which the student may wish to make a specialty. For example, Greek, Latin, English and Mathematics may be pursued through most of the time during the four years ; French and German each for three years ; the Natural Sciences, History, and the Social, Intellectual and Moral Sciences, for from two to three years.

The electives embrace studies in Greek and Latin ; French and German, including studies in Comparative Literature ; the higher Mathematics, including Calculus and the New Geometry ; History ; Political and Social Science ; English Literature ; Chemistry, theoretical and applied, with laboratory work ; Physics ; Geology ; Botany ; Zoology ; Biology ; Anthropology ; Metaphysics ; the History of Philosophy ; the Theory of Fine Art.

Other subjects, in which classes are likely to be small, like Anglo-Saxon and Italian, will be offered occasionally, at such intervals as to give all students an opportunity to take them at some time during their college course.

II. Candidates for the degree of Ph. B. will have the same required courses and the same electives as candidates for the degree of A. B., except that, omitting Greek, they will begin the study of French and German one year earlier and will select in the second year from the more advanced electives.

III. Persons who may desire to take a short academic course preparatory to the study of medicine may take the first two years of the course leading to the degree of Ph. B., with any of the electives of the entire department for which they have the requisite preparation.

IV. Students in any of the other departments may, by special permission of the Faculty, take a limited number of electives from the departments of Engineering and Chemistry.

V. It is assumed that the choice of electives will be made by the student with reference to some clear, deliberate purpose, and as the result of consultation with members of the Faculty. In all cases the natural sequence of studies must be observed. The Faculty reserve the right to exclude a student from any course for which his previous studies have not properly prepared him.

VI. Arrangements are made between the Academic and Medical departments by which a candidate for the degree of A. B. or Ph. B. may count certain Medical studies of the first year as equivalents for part of his last year's Academical studies, and in this way may abridge by one year the time necessary for taking his degrees in both departments.

THE CHOICE OF ELECTIVES

The studies of Freshman year are all prescribed. For Classical studies they are : *Greek, Latin, Mathematics, English and Hygiene* ; for Literary-Scientific students Greek is replaced by *French*.

With Sophomore year the system of Elective studies begins. It is designed to start students upon those different paths which lead to specialization in different branches. It is important therefore that studies should be chosen with a view to a definite goal. The Prescribed studies of Sophomore year are *English, and one Modern Language*. The Elective studies of Sophomore year are *Greek, Latin, Elementary German, Elementary or Intermediate French, History, Mathematics, Chemistry, Physics, Biology, Botany*. If Classical studies are the goal, Greek and Latin should be chosen, and German would be a valuable accessory. If it is the aim to emphasize the Literary studies, German and French should be elected. Mathematics is the best preparation for physics, and Chemistry for the biological sciences.

Every student should endeavor to secure a working knowledge of at least one modern language, and *no language should be pursued for less than two years.*

The studies of Junior year should continue the lines elected in Sophomore year, and the studies of Senior year should complete the same, but opportunity should be secured for the enrichment presented in the Philosophical, Political, Social and Historical studies. In this way a relatively high degree of specialization may be combined with the advantages of liberal studies. No student, however, will be allowed to enter a course when in the opinion of the instructor his previous studies have not properly prepared him for it.

The requirement of Military instruction has recently been extended so as to include Seniors.

DEPARTMENT OF ENGINEERING

FACULTY

MATTHEW H. BUCKHAM, D. D., President, *Political Science.*

VOLNEY G. BARBOUR, Ph. B., C. E., Dean of Faculty,
Bridge Construction and Mechanics.

JOSIAH W. VOTEY, C. E., *Civil Engineering.*

HARRY A. STORRS, C. E., *Electrical Engineering.*

ARTHUR W. AYER, B. S., *Mechanical Engineering.*

GEORGE H. PERKINS, Ph. D., *Natural History.*

NATHAN F. MERRILL, Ph. D., *Chemistry.*

LEWIS J. HUFF, A. M., *German.*

WILLIAM C KITCHIN, Ph. D., *French.*

FREDERICK TUPPER, JR., Ph. D., *English Language and Literature.*

ALLISON W. SLOCUM, A. M., *Physics.*

LIEUT. CHARLES J. BAILEY, A. M., *Military Tactics.*

JAMES EATON, *Shop Work.*

CARROLL W. DOTEN, Ph. B., *Elocution.*

GEORGE E. P. SMITH, B. S., *Civil Engineering.*

ARTHUR D. BUTTERFIELD, M. S., *Mathematics.*

Candidates for admission to this Department must be prepared in the ordinary English branches, including arithmetic, algebra through quadratics, plane, solid and spherical geometry, English grammar and literature as prescribed for the course in Arts, page 17, English and American history, botany and political and physical geography.

After 1899, candidates must also be prepared with two years of French, or two years of German, or an equivalent of Latin. Students entering next year without preliminary instruction in either French or German, will be expected to give all the time devoted to modern language, to the study of French.

There are three courses of study in the Department ; one in Civil Engineering, one in Mechanical Engineering, and one in Electrical Engineering, each covering four years. In laying out these courses the University has kept in mind two principles ; first, that a technical course pursued in a University ought to be broadly educational ; second, that it ought to be in the best sense professional. It aims to give not so much a technical apprenticeship as a professional education. All courses include the study of mathematics, chemistry, physics, theoretical and applied mechanics, English, French, German, political economy.* Technical Essays are required from students at intervals during their course, and a Graduating Thesis must be submitted by each near the close of the Senior year.

The Department is well supplied with Engineering and Scientific periodicals, including the publications of the chief engineering societies of this country and of the English Institute of Engineers ; and the Library contains a very complete list of the valuable works in the several branches of Engineering.

Graduates of the Academic course may complete the special studies of the Department in three years, or in two years where sufficient preparation has been made in mathematics, chemistry and physics.

*For more detailed statement of Studies, see Courses of Instruction, pages 27-41, and the Bulletin of the Department, which may be obtained by application to the Registrar of the University.

CIVIL ENGINEERING

The special studies in Civil Engineering are arranged with the object of furnishing a broad training in the technical branches, and of giving the student a thorough and practical knowledge of the essential principles of the various branches of the profession, so that on graduation he may be well equipped to enter successfully any one of the special fields of engineering.

Drawing. The special instruction in the various kinds of Drawing is confined to the first two years, but some work in the drawing-rooms is required throughout the course, the time during the later years being devoted to Mapping Surveys and to Structural Drawing and Designing.

Surveying and Summer School of Surveying. The student is taught the theory, use and adjustments of all the instruments used in surveying, the methods of conducting surveys and of computing and plotting the results of the work. The Field Work in surveying is carried on mainly at the Summer School of Surveying, which is held during the four weeks following the close of the regular college year. Attendance at this school is required of all students in Civil Engineering for the first two years of their course, and the work may be elected by students of any other class or department. A fee of five dollars for incidental expenses is charged for this course. Any young man outside of the University, who may desire a course in practical surveying, if properly fitted for the work, may be admitted to the School upon application.

Railroad Engineering. In the second half of Junior year the class-room work in Railroad Surveying is commenced, and this is followed by field practice in running curves and cross-section work. A location is made of a short line of road, and the work preliminary to construction is carried out, estimates being made of the quantities of material involved and the cost of construction. In Senior year a course of lectures is given on Railway Construction, Equipment and Operation.

Engineering Construction. During Junior year four hours a week are devoted to the study of the materials of construction, and especially of the characteristics and properties that govern the selection, manufacture and use of such materials in engineering work. Laboratory tests of the physical properties of the materials form an important part of this course, and are carried on in connection with the class room work.

In Senior year attention is given to the subjects of Foundations and Masonry work, the Improvement of Rivers and Harbors, and Canal Construction. The study of Specifications and Contracts forms a part of this course.

Highway Engineering. The general principles relating to the location and building of country roads and city streets are first considered, followed by a detailed study of the materials and methods used in the construction of Macadam and Telford roads and the various forms of street pavements. The engineering laboratory has a complete equipment for testing road and paving materials.

Sanitary Engineering. This course includes a study of house plumbing, the sewerage of cities, the methods of sewage disposal, the collection, storage and distribution of water and the heating and ventilation of buildings.

Equipment. The collection of surveying instruments is sufficiently large and complete to enable the field work to be carried on to the best advantage.

The testing laboratory contains a cement machine of 2,000 pounds capacity, a Richlé testing machine of 50,000 pounds capacity, and an Olsen machine of 200,000 pounds. These machines are equipped with the special appliances needed, including micrometers and extensometers, for properly conducting experimental work.

SYNOPSIS OF COURSES

FRESHMAN YEAR.		A	B	SOPHOMORE YEAR.		A	B
Mathematics 1 ^a a, b, c	5	5		Mathematics 2 ^a a, b	4	4	
Drawing 1a, 2a	2	2		Mathematics 2 ^c c	1	1	
Drawing 3a		1		Drawing 2b, 3b	3	2	
Surveying 1a		1		Drawing 4a, 2c	1	2	
Chemistry 1a, b	4	4		Surveying 2a, 2b	1	1	
Natural Sciences 1	1	1		Physics 1	4	4	
English 1	2	2		English 2	2	2	
French 1, or German 1	4	4		French 2, or German 2	2	2	
Vacation				Vacation			
Surveying 1b, one month				Surveying 2c, one month			
JUNIOR YEAR.		A	B			A	B
Mechanics 1a, b, c	4	4				4	1
Engineering Construction 1a, b	2	2					3
Drawing 3c, 4a	4	4				5	
Geodesy	2						3
Surveying 3b		3				3	
Engineering Construction 2a		2				2	2
Political Science 1	3	3					1
Mineralogy	3					2	
Natural Sciences 7		3					2
Vacation							2
Engineering Thesis							

MECHANICAL ENGINEERING

The technical studies of the course in Mechanical Engineering are designed to give the student a knowledge of the fundamental principles of engineering practice, together with such a training, both theoretical and practical, as will best help him to become a successful designer of machinery, or to approach from the best standpoint problems relating to the generation, transmission, and use of power. The groundwork of this instruction is given by means of recitations and lectures in the class room, and these are supplemented by extended courses in the drawing room, the workshops, and the engineering laboratory.

For explanation of letters and figures in heavy face type, see p. 22.

Class Room Work of the course proper begins in the Sophomore year with a study of elementary mechanism, gear tooth construction, and the mechanism of machine tools. The Junior year is taken up almost wholly with the general subject of steam engineering, including the mechanism and thermodynamics of the steam engine, the construction and management of steam boilers and pumps, the use of the steam engine indicator, etc. In the Senior year the study of machine design is made an important feature, and instruction is given also on the subjects of governors and fly-wheels, the use of compressed air, mechanical refrigeration, measurement of power, gas and oil engines, and the multiple expansion steam engine.

Drawing. Instruction and practice in drawing are given during all four years of the course. The work includes projection drawing, free hand lettering, the making of working drawings, blue-printing, and designing.

Shopwork begins in the second half of the Freshman year with instruction in carpentry, followed in the Sophomore year by wood-turning, pattern making, and foundry work. Forging, chipping and filing, and machine tool work are taught during Junior and Senior years. The shops are well fitted up, and are supplied with equipment as follows :

The carpenter and pattern shop contains, in addition to fourteen carpenter benches, and a full line of tools for manual work, twelve wood-turning lathes, an eighteen-inch pattern-maker's lathe, a buzz planer, two circular saws and a scroll saw. The foundry is supplied with a cupola furnace, brass furnace, core-oven and a complete outfit for bench and floor moulding. The forge shop contains eight forges and anvils, a hand drill, a punching and shearing machine and all the hand tools necessary for instruction in this branch. The machine shop is equipped with filing and chipping benches, five engine lathes, two hand lathes, a planer, a shaping machine, two upright drills, a milling machine, a grinding machine and a wet

emery grinder, together with a large assortment of machinists' hand tools and fixtures.

Engineering Laboratory. The work in the laboratory begins in the second half of the Junior year with tests upon steam engines, pumps, injectors, etc., and is followed during the Senior year by boiler trials, the use of dynamometers, hydraulic experiments, and the testing of materials of construction. A twenty-five horse power Harris-Corliss engine, which also supplies power for the shops, two smaller vertical engines, and a fifty horse power tubular boiler are available for engine and boiler tests. The laboratory contains also a surface condenser and air pump, a large duplex steam pump, a pulsometer, two friction brakes, two transmission dynamometers, indicators and planimeters, several steam calorimeters, a steam injector arranged for testing, a steam gage tester, and numerous minor pieces of apparatus used in connection with these. For work in hydraulics there is provided an orifice tank, arranged for both high and low heads, a large weighing tank, a twelve-inch weir, a three-foot weir, and a hydraulic ram. This equipment will be still further increased during the next two years.

SYNOPSIS OF COURSES

FRESHMAN YEAR			SOPHOMORE YEAR		
	A	B		A	B
Mathematics 1* a, b & c.....	5	5	Mathematics 2* a & b.....	4	4
Drawing 1a.....	2	2	Mechanical Engineering 1a & b.....	2	2
Shopwork 1.....	2	2	Drawing 1b.....	1	2
Chemistry 1a & b.....	4	4	Shopwork 2a & b.....	2	2
Natural Science 1.....	1	1	Physics 1.....	4	4
English 1.....	2	2	English 2.....	2	2
French 1, or	4	4	French 2, or	3	3
German 1.....			German 2.....		
JUNIOR YEAR			SENIOR YEAR		
	A	B		A	B
Mechanics 1a, b & c.....	4	4	Mechanics 3a & b.....	4	1
Mechanical Engineering 2a & b.....	4	4	Eng. Construction 1a & b.....	2	2
Mechanical Engineering 5a....		2	Mechanical Engineering 3a & b.....	4	4
Drawing 1c.....	3	2	Mechanical Engineering 5c....	3	3
Shopwork 3a & b.....	3	3	Mechanical Engineering 5b....		2
Political Science 1.....	3	3	Shopwork 4.....	3	3

See pages 22-14.

ELECTRICAL ENGINEERING

The special studies in Electrical Engineering begin with a two-hour course in Sophomore year devoted to a study of electrical units, the laws governing electric and magnetic circuits, and the elementary theory of the dynamo. The four-hour course in Junior year is devoted chiefly to a detailed study of dynamo-electric machinery, and includes the designing of direct current dynamos and motors. Accompanying this is a laboratory course covering tests of direct-current dynamos and motors for determining their efficiencies under various conditions of load and speed. In this work each student learns how to make the necessary connections and operate the machines, and also how to use many electrical measuring instruments.

In Senior year, most of which is devoted to strictly engineering subjects, one course treats of the mathematical theory of alternating currents and the designing of alternators, transformers and multi-phase motors, and is supplemented by a laboratory course following the same line of work. Another course is arranged to deal successively with most of the important lines of electrical engineering work, such as electric railways, electric lighting and transmission of power, storage batteries, telephone systems, etc., and includes the careful working out in detail of designs of power stations, complete lighting and railway systems, etc., with due consideration for items of first cost, maintenance, operating expenses, safety to persons and property, and such other matters as have constantly to be dealt with in practical engineering work. This course is also accompanied by suitable laboratory work; *e. g.* a series of tests with two street-car motors, a controller and two friction brakes, the conditions being so arranged as to represent closely those met with in electric street-railway work. Careful notes are taken of all laboratory work done, and permanent records are systematically worked out and tabulated.

The Electrical Engineering Laboratories are situated in the Williams Science Hall, and through the generosity of Dr. Williams have been well equipped with many standard electrical instruments

and machines. The two laboratories in the East wing contain the following dynamos and motors: a direct current 25 kilo-watt 110 volt dynamo; a 5 H. P. 110 volt motor; a 5 kilo-watt machine, designed specially for experimental purposes and provided with duplicate parts; a Thompson-Houston arc-light dynamo; and a Westinghouse 10 H. P. machine of special design, which can be used as a direct-current dynamo or motor, as a self-exciting alternator or two-phase generator, or as a two-phase motor and rotary converter. All these machines can be driven by belts from a line shaft which is itself driven by a Westinghouse 25 H. P. three-phase motor. The latter is operated by current from the wires of a local company and can therefore be started instantly whenever needed. A large number of portable and accurate instruments of the most modern varieties are available for making tests, and the laboratories contain such other accessory apparatus as are necessary for rapid and complete tests. In the "railway" laboratory are two 50 H. P. Thompson-Houston 500 volt street-car motors, a K-2 series-multiple controller, and two friction dynamometers capable of absorbing the entire output of the motors. These are mounted and connected so that their efficiencies and power may be accurately determined under many conditions of loading.

Two rooms are devoted to photometric work. These will contain, including the instruments to be added this year, a Reichsanstalt photometer with numerous accessions and light standards, a mercury pump, a storage battery, etc. A room in the basement is being fitted up as an electro-metallurgy laboratory, and will soon be furnished with a low-voltage dynamo, a slate switchboard, vats, etc. For original experiments in connection with graduating thesis, many instruments of high precision are placed at the disposal of Senior students, and a workshop containing a lathe, bandsaw and other tools operated by a Stanley electric motor, affords opportunity for the construction of special apparatus.

SYNOPSIS OF COURSES

FRESHMAN YEAR		A	B	SOPHOMORE YEAR		A	B
Mathematics 1 ^a a, b & c.....	5	5	Mathematics 2 ^a a & b.....	4	4		
Drawing 1a.....	2	2	Mech. Engineering 1 a & b....	2	3		
Shopwork 1.....		2	Drawing 1 b.....	1	2		
Chemistry 1 a & b.....	4	4	Shopwork 2a, Elec. Eng. 1a&b	2	2		
Natural Sciences 1.....	1	1	Physics 1.....	4	4		
English 1.....	2	2	English 2.....	2	2		
French 1 or German 1.....	4	4	French 2, or German 2.....	3	2		
JUNIOR YEAR		A	B	SENIOR YEAR		A	B
Mechanics 1 a, b & c.....	4	4	Mechanics 3 a & b.....	4	1		
Mech. Engineering 2 a & b....	4	4	Engineering Construction 1a&b	2	2		
Mech. Engineering 5a.....		2	Elec. Engineering 3a & b.....	3	2		
Drawing 1 c.....	3		Elec. Engineering 4 a & b....	2	3		
Elec. Engineering 2 a & b....	4	4	Elec. Engineering 6.....		2		
Elec. Engineering Lab. 5 a.....	3	3	Elec. Eng. Lab. 5 b.....	3	3		
			Shopwork 4.....	3	3		

DEPARTMENT OF CHEMISTRY

FACULTY

MATTHEW H. BUCKHAM, D. D., President.

NATHAN F. MERRILL, Ph. D., *Chemistry*.

GEORGE H. PERKINS, Ph. D., *Natural History*.

LEWIS J. HUFF, A. M., *German*.

WILLIAM C KITCHIN, Ph. D., *French*.

ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.

FREDERICK TUPPER, Ph. D., *English Language and Literature*.

ALLISON W. SLOCUM, A. M., *Physics*.

LIEUT. CHARLES J. BAILEY, A. M., *Military Science and Tactics*.

JOHN BRAINERD STEARNS, B. S., *Chem. and Mineralogy*.

CHARLES F. WHITNEY, B. S., *Gen. Chem. and Qual. Anal.*

HENRY AUGUSTUS TORREY, Ph. D., *Physical and Physiol. Chem.*

In this Department, during the first year, every student attends about seventy lectures and recitations in General Chemistry, and as soon after the beginning of the year as it seems advisable, enters the laboratories, where he pursues graded and systematic work, beginning with a schedule of experiments designed to illustrate fundamental principles and cultivate familiarity with the common elements and their compounds. From the outset quantitative methods are followed as far as practicable.

Qualitative Analysis is next studied. The work includes the use of the spectroscope and the examination of commercial products. Lectures and recitations continue through the course.

After the completion of Qualitative Analysis, Quantitative Analysis is begun, the student proceeding through the simpler determinations to more difficult analyses. The course embraces gravimetric and volumetric methods with applications to analyses of commercial products. Occasionally the students meet together and present statements of work done in the laboratory with discussion of methods, etc. In this way each student may derive benefit from the work done in the laboratory by the entire class.

In the Senior year Organic Chemistry is taken up both in the class-room and in the laboratory. This course involves the preparation of organic compounds and their analysis. Students of ability will be encouraged to undertake original investigations under the special supervision of the head instructor.

Lectures are given upon Industrial processes and these lectures are occasionally supplemented with excursions to manufacturing establishments. In the third year facilities are offered, and instruction is given, in Crystallography, Mineralogy and Assaying of Ores by both fire assay and wet assay. A short course of lectures on the History of Chemistry is given.

During the Senior year instruction is given in those parts of mechanical engineering which have a direct bearing upon the chem-

ical industries. This work includes lectures upon prime movers, boilers and pumps, the elements of machines and the proportioning of shafting, pulleys and belts, together with some actual practice in the management of boilers and steam engines. In the Junior year a course on electric motors is given.

SYNOPSIS OF COURSES

FRESHMAN YEAR			SOPHOMORE YEAR		
	A	B		A	B
Chemistry, lectures.....	2	2	Laboratory.....	3	3
Laboratory.....	2	2	Physics.....	4	4
Mathematics 1.....	5	5	German 1.....	4	4
Drawing.....	2	2	English 2.....	2	2
English 1.....	2	2	French 2.....	3	3
French 1.....	4	4	E. History 1.....	3	3
			Analytics.....	3	3
JUNIOR YEAR			SENIOR YEAR		
	A	B		A	B
Laboratory incl. Assaying.....	7	7	Laboratory.....	9	9
Mineralogy with Blowpipe De-			Organic Chemistry, lectures.....	2	2
terminations.....	3		Machinery and Motors.....	2	
Stoichiometry.....	2		Industrial Chemistry.....		2
Electric Motors.....	2		History of Chemistry.....		1
Physiology.....	2	2	Geology.....		3
German 2.....	3	3	Theses.....		
Commercial Organic Analysis.....		2	E. Physiological Chemistry....	2	
Physical Chemistry.....		2			
E. Calculus.....	3	3			

[The lectures in Organic Chemistry and in Industrial Chemistry are usually given to Juniors and Seniors together, in alternate years.]

Certain studies of the Senior year in the Classical Department may be optional with a corresponding amount of laboratory work throughout this year.

All the courses in Chemistry are open as electives to such students in the Classical and Literary-Scientific Departments as are qualified to pursue them.

After Freshman year, students will be required occasionally to write essays upon subjects relating to their principal study, and

these will be criticised with respect to their correctness as English compositions.

It is desirable that applicants for admission to full standing in the Department of Chemistry as candidates for its degree should have had the regular classical course—the usual preparation for College—at some school whose certificates are recognized by this University. Candidates for a degree in this department must have had in their preparatory courses two years of instruction in either Latin, French or German, or must pass examinations representing that amount of linguistic training. This requirement will be enforced at the beginning of the college year 1900-1901.

Students who can pass the examinations of the first year in French, may take the second-year courses in that study in their Freshman year. Those who begin French in Freshman year and German in Sophomore year must continue French through Sophomore year. Students who begin German in Sophomore year must continue German during Junior year. A two years' course in both French and German is required for students who have had neither of these languages.

For other requirements for admission to the Department, see the general statements respecting admission to the scientific departments on page 18. Ancient History will not be required.

Students showing proper qualifications may be admitted to a special course in Chemistry by permission of the President and of the Professors of the Department; but such students cannot receive the degree.

DEPARTMENT OF AGRICULTURE

FACULTY

MATTHEW H. BUCKHAM, D. D., President, *Political Science*.
JOSEPH L. HILIS, B. S., Dean, *Agricultural Chemistry*.
GEORGE H. PERKINS, Ph. D., *Natural History*.
SAMUEL F. EMERSON, Ph. D., *History*.
NATHAN F. MERRILL, Ph. D., *Chemistry*.
ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.
LEWIS J. HUFF, A. M., *German*.
JOSIAH W. VOTEY, C. E., *Surveying and Road Making*.
LEWIS R. JONES, Ph. B., *Botany*.
ARTHUR W. AYER, B. S., *Mechanical Engineering*.
WILLIAM C. KITCHIN, Ph. D., *French*.
FREDERICK TUPPER, JR., Ph. D., *Rhetoric and Elocution*.
ALLISON W. SLOCUM, A. M., *Physics*.
FRANK A. WAUGH, M. S., *Horticulture*.
LIEUT. CHARLES J. BAILEY, A. M., *Military Science and Tactics*.
JOHN B. STEARNS, B. S., *Mineralogy*.
FRANK A. RICH, V. S., M. D., *Veterinary Medicine and Stock Breeding*.
HEMAN B. CHITTENDEN, A. M., *English*.
JAMES EATON, *Shop Work*.
WARREN G. BULLARD, Ph. D., *Mathematics*.
WILLIAM A. ORTON, M. S., *Botany*.
GEORGE E. HUMPHREY, *Dairying*.

~~Students are intended to im-~~

Students are admitted to the Chemical Department under the same requirements as to Mathematics, English, History (ancient history excepted,) French and German, as are found on pages 17 and 18. Analytics is an elective. Assaying comes in the first half of Junior year.

these will be criticised with respect to their correctness as English compositions.

It is desirable that applicants for admission to full standing in the Department of Chemistry as candidates for its degree should have had the regular classical course—the usual preparation for College—at some school whose certificates are recognized by this University. Candidates for a degree in this department must have had in their preparatory courses two years of instruction in either Latin, French or German, or must pass examinations representing that amount of linguistic training. This requirement will be enforced at the beginning of the college year 1900-1901.

Students who can pass the examinations of the first year in French, may take the second-year courses in that study in their Freshman year. Those who begin French in Freshman year and German in Sophomore year must continue French through Sophomore year. Students who begin German in Sophomore year must continue German during Junior year. A two years' course in both French and German is required for students who have had neither of these languages.

For other requirements for admission to the Department, see the general statements respecting admission to the scientific departments on page 18. Ancient History will not be required.

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FACULTY

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SAMUEL F. EMERSON, Ph. D., *History*.
NATHAN F. MERRILL, Ph. D., *Chemistry*.
ARCHIBALD L. DANIELS, Sc. D., *Mathematics*.
LEWIS J. HUFF, A. M., *German*.
JOSIAH W. VOTEY, C. E., *Surveying and Road Making*.
LEWIS R. JONES, Ph. B., *Botany*.
ARTHUR W. AYER, B. S., *Mechanical Engineering*.
WILLIAM C. KITCHIN, Ph. D., *French*.
FREDERICK TUPPER, JR., Ph. D., *Rhetoric and Elocution*.
ALLISON W. SLOCUM, A. M., *Physics*.
FRANK A. WAUGH, M. S., *Horticulture*.
LIEUT. CHARLES J. BAILEY, A. M., *Military Science and Tactics*.
JOHN B. STEARNS, B. S., *Mineralogy*.
FRANK A. RICH, V. S., M. D., *Veterinary Medicine and Stock Breeding*.
HEMAN B. CHITTENDEN, A. M., *English*.
JAMES EATON, *Shop Work*.
WARREN G. BULLARD, Ph. D., *Mathematics*.
WILLIAM A. ORTON, M. S., *Botany*.
GEORGE E. HUMPHREY, *Dairying*.

The studies of the Agricultural Department are intended to impart both the theoretical and the practical knowledge necessary to success in farming, and at the same time to include enough of mathematics, literature, science and philosophy for a broadly scientific education.

Agriculture occupies a leading place in the course for three years. The course in Chemistry given during the Freshman year enables the student to gain a more thorough understanding of soils and fertilizers; while the instruction in Botany, begun in the first half of Sophomore year, prepares the way for the intelligent consideration of the values, uses and cultivation of grasses, forage plants and crops of all kinds.

Stock Feeding and Breeding are taught by lecture, text-book and practical application. The students are instructed in the principles of animal nutrition, the adaptability of various fodders and feeds for farm purposes and the better methods of feeding. Abundant opportunity for illustration of breeds of live stock and for instruction in scoring animals is afforded at the Farm and in the near vicinity.

Exceptional facilities for instruction in dairying are afforded in connection with the Dairy School, where several of the better styles of separators, churns, butter-workers, milk-testers, etc., are in use, and the student has an opportunity to become familiar with the various systems of handling milk, and expert in manipulating the apparatus.

Critical studies of the work of American and foreign Agricultural Experiment Stations are made in connection with each of the agricultural courses, by lectures, collateral reading and theses. Original investigation in agricultural or allied lines is required throughout Senior year in preparation for graduation thesis.

Botanical subjects are studied during the last three years of the course. The work begins with a careful study of the plant cell as fundamental to an understanding of vegetable structure and physiology. This is followed by a study of typical species of the lower plants with reference to their special structure, physiology, development and relationship. In the work upon Systematic Botany especial attention is given to the grasses, the clover family, weed-plants and trees. Elective courses in Morphology, Embryology, and Physiology of Plants, offer opportunity for further work along similar lines. During the Senior course in Plant Pathology a study is made of the nature and causes of plant diseases and the remedies for the same. In con-

nection with this work there is opportunity for special bacteriological studies. The spraying apparatus used in the Experiment Station work, the facilities of the green-houses, bacterial cultures, and collections of dried and alcoholic specimens furnish opportunities for work of a thoroughly practical nature.

The new botanical laboratories in the Williams Science Hall are supplied with simple and compound microscopes, paraffin baths, microtomes, ovens, etc., for bacteriological work, a special plant room and apparatus for the experimental study of the physiology of plants, photographic apparatus and dark room. The herbariums of the University and the Experiment Station are open to students who are prepared to use them with profit. An elective course offers opportunity for more extended laboratory studies of bacteria and fungi.

Horticulture is required of students in the Agricultural course through one year; and an additional required half-year's work (see Agriculture 5) applies equally to agriculture and horticulture. As far as possible horticulture is brought into vital connection with modern scientific thought. The student is prepared to solve whatever problems may confront him, rather than taught by rote the empiricisms of a handicraft. Every effort is made to secure directness and accuracy in original investigation and to foster an intelligent love for horticultural pursuits. Orchards, gardens, green-houses and laboratories are open to constant use.

Veterinary Science is a required study during one-half of the course. The student learns first the general structure of domestic animals by lectures, by the examination of charts, models and museum specimens, and by the dissection of the animals themselves. The physiology of domestic animals is next studied, then the microscopic structure of the various parts. The common diseases and their remedies are discussed in lectures, and free clinics are held for studying these diseases in the living animals. The subjects of inoculation, disinfection and immunity are considered in connection with the study of contagious diseases.

The required work in mathematics includes Solid Geometry, Advanced Algebra and Trigonometry. More or less extended courses are required in Chemistry, Entomology, Geology, Mineralogy, English, and either French or German.

Electives. During the last two years students are allowed to select studies under the advice of instructors from any of the academic departments of the University.

The Billings Library and that of the Experiment Station are well supplied with standard works in the various departments of agriculture, and the leading agricultural, horticultural and botanical journals are found in the Reading Room.

Students in the Agricultural Department are subject to the same regulations and requirements as other students, except that residents of Vermont are not required to pay tuition. There is opportunity for several students to defray a part of their expenses by work.

SHORT COURSE IN AGRICULTURE

Students who do not wish to take the full four years' course may take a special course of one year, or of two years, selecting such studies as they are fitted to pursue. Such students may receive Certificates of Proficiency, but are not candidates for a degree.

SYNOPSIS OF COURSES

FRESHMAN YEAR.	A	B	SOPHOMORE YEAR.	A	B
Mathematics 1.....	5	5	Soils, Tillage, Drainage, Irrigation, Fertilizers.....	5	
Chemistry 1.....	4	4	Biology of Plants.....	4	
English 1.....	4	4	Comp. Anat. Domestic Animals.....	2	
French or German.....	4	4	English 2.....	3	3
Hygiene, lectures.....	1	1	French or German.....	3	3
			Grasses.....		1
			Systematic Botany.....		3
			Histology.....		3
			Horticulture.....		3

JUNIOR YEAR.	A	B	SENIOR YEAR.	A	B
Stock Feeding, Dairying.....	4		Original Investigation for		
Comp. Phys. Domestic Animals.....	2		Thesis.....	3	3
Horticulture.....	3		Mineralogy.....	3	
Stock Breeding, Breeds of			Geology.....		3
Stock.....		3	Plant Pathology.....		3
Plant Breeding.....		3			
Diseases of Animals.....		3			
Entomology.....		2			
E. Landscape Gardening.....					
Plant Morphology, Embryology			E. Biology of Animals.....		
and Physiology. Forestry,			Road Making, History.....		
Shop Work, History, French,			Political Science.....		
German.....			Philosophy, Anthropology.....		

DAIRY SCHOOL

The eighth annual session of the Dairy School begins on Monday, January 9th, 1899, and closes on Saturday, February 4th. The school is designed to teach in a practical manner the manufacture of butter with the latest and most approved apparatus. Three courses aggregating about fifty lectures are given on the constitution and production of milk, its creaming and churning, best methods of handling, testing, etc. Text-books with quizzes are used so far as practicable. Several hours of actual work with dairy machinery are given each day.

The names of the students cannot be given here, as this catalogue is issued a few weeks before the opening of the session. The class is limited to fifty, and in previous years this or a larger number of students has attended the school.

LECTURES AND RECITATIONS—HOUR PLAN.

	8 30—9 30	9 30—10 30	10 30—11 30	11 30—12 30
MONDAY	Mathematics 1* Mathematics 2 Latin 1 German 3 History 3 Philosophy 1 Hydraulics Steam Engineering Agriculture 3 & 4 Veterinary Sci 3	English 1† Latin 2 Greek 4 Chemistry 6 Am. History Mechanics Physics 1	Mathematics 1** English 2 Italian Greek 3 Philosophy 3 Agriculture 1 Veterinary Sci. 4 Entomology Machines & Motors Graphics	French 1 German 1 Chemistry 5b Chemistry 7a
	Chemistry 3 & 7c		Physics 2	Geology Electric Motors
TUESDAY	Mathematics 1* Latin 1 History 1 Philosophy 2 Economics Italian Hydraulics Steam Engineering Agriculture 3 Agriculture 4	English 1 Latin 3 History 2 Chemistry 1 Physiology 2 Political Science 2 Mechanics Veterinary Science Agriculture 1	Mathematics 1** English 4 German 2 French 2 Mechanism Graphics Horticulture 2 Elocution†	German 1 French 1 Stoichiometry Anthropology Geology Veterinary Science Horticulture 3 Horticulture 4
	Chemistry 2 and 7b	Physics 2		
WEDNESDAY	Mathematics 1* Mathematics 2 History 3 German 3 Philosophy 1 Agriculture 3 Agriculture 5	Latin 2 Greek 4 Am. History 4 Physics 1 Biology 1 Declamation 1	Mathematics 1** English 2 Italian Greek 3 Philosophy 3 Agriculture 1 Horticulture 1 Graphics	Oratory and College Meetings
	Chemistry 3, 5a and 7c Engineering Construction	Physics 4		

THURSDAY			
Mathematics 1*	English 1††	Mathematics 1**	German 1
Latin 1	Latin 3	English 4	French 1
Italian	History 2	German 2	
History 1	Chemistry 1	French 2	
Philosophy 2	Physiology 2	Horticulture 1	
Economics	Political Science 2	Entomology	
Hydraulics	Mechanics	Mechanism	
Steam Engineering	Agriculture 1	Graphics	Horticulture 4
Agriculture 3	Horticulture 1 & 2		
Agriculture 5			
FRIDAY			
Chemistry 2 and 7b	Physics 2		
		Mathematics 1**	German 1
Latin 1	Greek 4	English 2	French 1
German 3	Am. History	Italian	Chemistry 5b
History 3	Botany 1	Greek 5	Chemistry 7a
Philosophy 1	Horticulture 2	Philosophy 3	Vegetable Pathol'y
Steam Engineering	Elocution††	Machines & Motors	Forensics
Agriculture 3		Horticulture 1	Philosophy 4
Agriculture 5		Agriculture 1	
		Graphics	
Chemistry 3, 5a and 7b		Physics 4	
Engineering Construction			
SATURDAY			
History 1	Latin 3	German 2	Veterinary Sci. 3
Philosophy 2	Biology 1	French 2	Military Science II
Economics	Mechanics	Veterinary Sci. 1	Chemistry 6
Italian	Veterinary Sci 4		Italian
Hydraulics	Astronomy		Philosophy 3
Agriculture 3 & 4			
Hygiene			
Chemistry 3 and 7b			
Chemistry 2			

I Freshman
II Sophomore
III Junior

LECTURES—HOUR-PLAN.

	2 00—3 00	3 00—4 00	4 00—5 00
MONDAY	Mathematics 1** English 3 Greek 2 Military Science I <hr/> Mechanical Engineering Drawing II Laboratory work in Botany 1 Laboratory work in Physics 1†† Laboratory work in Mineralogy Shop work III Chemistry 7b	French 3 Greek 1 Plant Physiology	
TUESDAY	Mathematics 1** Greek 5 Declamation II <hr/> Laboratory work in Biology 1 Laboratory work in Physics 1† Laboratory work in Chemistry 1†† Electric Motors ‡ Shop work III History	Greek 1 French 4 & 5	Gen- eral Drill
WEDNESDAY	Mathematics 1** English 3 Greek 2 <hr/> Laboratory work in Mineralogy Laboratory work in Chemistry 1† Laboratory work in Physics 1†† Laboratory work in Botany 1 Shop work II Chemistry 7b	French 3 Plant Physiology	
THURSDAY	Mathematics 1** French 6 Greek 5 <hr/> Laboratory work in Biology 1 Laboratory work in Physics 1† Laboratory work in Chemistry 1†† Shop work III Chemistry 7b	Greek 1 French 4 & 5	
FRIDAY	Mathematics 1** English 3 Greek 2 <hr/> Laboratory work in Biology of Animals Laboratory work in Mineralogy Laboratory work in Chemistry 1† Shop work II Chemistry 7b	French 3 Greek 1 Plant Physiology	Gen- eral Drill

VERMONT AGRICULTURAL EXPERIMENT STATION

BOARD OF CONTROL

Pres. M. H. BUCKHAM, *ex-officio*, *Chairman*
Hon. E. J. ORMSBEE, *Brandon*
Hon. CASSIUS PECK, *Burlington*
Hon. G. S. FASSETT, *Enosburgh*

OFFICERS OF THE STATION

J. L. HILLS, B. S.....*Director and Chemist*
G. H. PERKINS, Ph. D.....*Entomologist*
L. R. JONES, Ph. B.....*Botanist*
F. A. WAUGH, M. S.....*Horticulturist*
F. A. RICH, V. S., M. D.....*Veterinarian*
Hon. CASSIUS PECK.....*Farm Superintendent*
B. O. WHITE, Ph. B.....*Assistant Chemist*
C. H. JONES, B. S.....*Assistant Chemist*
W. A. ORTON, M. S.....*Assistant Botanist*
W. C. NORCROSS.....*Dairyman*
MARY A. BENSON.....*Stenographer*
Hon. E. H. POWELL.....*Treasurer*

The Experiment Station was established as a department of the University of Vermont and State Agricultural College in 1886. The State made a small appropriation to it for four years. The General Assembly of 1898 passed a bill providing for certain expenses incurred in the observance of the State law. Since 1888 it has received the funds appropriated by Congress under the provisions of the

Act commonly known as the "Hatch Act," approved March 2, 1887. The object and duty of Experiment Stations thus established in connection with the Agricultural Colleges of the country is stated in Section 2 of that Act as follows: "It shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants and trees for acclimation; the analyses of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective States or Territories."

It is the wish of the Board of Control to make the Station as widely useful as its resources will admit. Every Vermont citizen who is concerned in agriculture, whether farmer, manufacturer or dealer, has a right to apply to the Station for any assistance that comes within its province to render, and the station will respond so far as lies in its power. All communications relating to agriculture, horticulture, plant or animal disease, insects, etc., are fairly considered, and, so far as possible, promptly answered.

The Station acts as a bureau of information upon matters of agricultural interest in a five-fold manner:

1. By the investigation of matters pertaining to the science and practise of agriculture and by the publication and distribution of the results of experiments in the form of Bulletins and Reports.

2. By articles appearing in the agricultural and general press.
3. By direct correspondence with individuals of all classes, particularly with farmers.
4. By the personal contact of members of the station staff with the farming community at institutes, fairs, by visits, etc.
5. By so conducting farm operations that visible and tangible evidence of the results of the application of science to agriculture may be shown to all interested.

The Station has issued since its establishment eleven annual Reports and sixty-six Bulletins. The publications of the past year have aggregated 399 pages of printed matter. The reports and bulletins of the Station are sent upon application, without charge, to any Vermont address.

MILITARY INSTRUCTION

In accordance with an Act of Congress, an officer of the United States Army is stationed at the University as Professor of Military Science and Tactics, and male students in the departments of Arts and Sciences are required to take part in military drill and instruction three hours each week. A neat, inexpensive uniform is worn during drill.

The drills take place twice a week and are so conducted as to afford healthful exercise, which, while not severe, tends to develop an erect figure and carriage. A building 150 by 70 feet is used as an armory, and a course of military gymnastics is combined with the drills. The military discipline, though enforced only during the hours for drill, is designed to develop soldierly honor and those ideas of promptness, order and obedience to lawful authority which are applicable to all callings in life.

The theoretical instruction is given to each class once a week by recitations, lectures and practical work. It embraces, besides the Drill Regulations of the U. S. Army, the elementary principles which govern the art of war, such as officers of a volunteer army should be conversant with when first called into the field.

Students are marked as in other courses of instruction, and upon the graduation of each class, the names of those students who have shown especial aptitude for military service are reported to the United States War Department and to the Adjutant General of the State, and the names of the three most distinguished students in Military Science and Tactics are inserted in the United States Army Register.

MILITARY ORGANIZATION

The students are organized into a battalion, consisting of four companies. The officers are taken from the Senior class, the sergeants from the Junior class, and the corporals from the Sophomore class.

The following is the Roster of officers and non-commissioned officers for the present year :

MAJOR

Wait C. Johnson.

CAPTAINS

- | | |
|-----------------------------------|-----------------------|
| 1. Clarence W. Richmond | 3. Robert A. Lawrence |
| 2. Frank F. Finney | 4. Charles H. Parker |
| 5. Warren R. Austin (Band leader) | |

FIRST LIEUTENANTS

- | | |
|------------------------------|-----------------------|
| 1. Max W. Andrews (Adjutant) | 5. Samuel C. Dunlop |
| 2. Charles I. Button | 6. Charles A. Bigelow |
| 3. Harry W. Smith | 7. Edward C. Wright |
| 4. George H. Burrows | 8. Ernest J. Ewing |
| 9. Carl B. Brownell | |

SECOND LIEUTENANTS

- | | |
|---------------------|------------------------|
| 1. Charles F. Blair | 5. Edward P. Hendricks |
| 2. Guy P. Lamson | 6. Leon E. Daniels |
| 3. Robert B. Morton | 7. Donald H. Scribner |
| 4. Ray W. Huse | 8. Jacob K. Shaw |

SERGEANT MAJOR

Royden E. Beebe

SERGEANT AND DRUM MAJOR

Jesse W. Tobey

FIRST SERGEANTS

- | | |
|---------------------|---------------------|
| 1. James O. Walker | 3. James B. Porter |
| 2. Horatio N. Drury | 4. Albert R. Nourse |

SERGEANTS

- | | |
|--------------------------------------|---------------------------|
| 1. Delano E. Farr | 9. Napoleon A. Laury |
| 2. Glenn C. Gould | 10. Harry C. Libby |
| 3. Levi B. Lincoln | 11. Arthur Boyce |
| 4. Charles A. Tracy | 12. Joshua B. Kirkpatrick |
| 5. Dell B. Allen | 13. Frederick W. Hubbard |
| 6. Charles M. Sturgess | 14. Guy W. Bailey |
| 7. Thomas R. Powell | 15. Ellery E. Webster |
| 8. Carroll D. Partridge (Col'r Sgt.) | 16. Frederick P. Byington |

CORPORALS

- | | |
|-----------------------|--------------------------|
| 1. Howard R. Smalley | 9. James Reynolds |
| 2. Aaron H. Grout | 10. Charles S. Dow |
| 3. Carl N. Thomas | 11. Roy S. Morse |
| 4. Dean H. Perry | 12. Clifford B. Griswold |
| 5. Martin A. Pease | 13. George F. Marsh |
| 6. Edwin W. Lawrence | 14. Fred C. Locke |
| 7. Alfred J. McKellow | 15. Albert F. Ufford |
| 8. Edward H. Reed | 16. Patrick M. J. Corry |

REGULATIONS

ABSENCES

1. The absences of students shall be in charge of a Committee of the Faculty.

2. Students in all departments of the University, with the exception of those in the Medical Department, are required to attend Prayers in the Chapel on all mornings when they have a college exercise the first hour.

3. Students not in their seats at Chapel when the bell ceases tolling will be marked absent.

4. A student's unexcused absences from Chapel exercises must not exceed twenty-five per cent of the whole number of the exercises which he is obliged to attend under § 2. Such unexcused absences shall be treated as specified in §§ 7 and 8.

5. Excuses for absence will in general be granted only for sickness, and for absence incurred by students who are obliged wholly or in part to support themselves, while actually engaged in work for such support.

6. The number of unexcused absences which are allowed in any subject during the half-year shall be the same as the number of exercises held weekly in that subject. Thus in a two-hour course, two absences will be allowed during the half-year; in a three-hour course, three absences, etc.

7. A student whose unexcused absences during a half-year exceed the number allowed in § 6 shall be placed on probation, and his parent or guardian shall be notified of his delinquency. A student who is placed on probation shall not be allowed to take part in the work of any students' organization, such as the Base Ball Nine, the Glee Club, etc. (also similar class organizations), nor shall he attend the convention of any secret society or other organization meeting out of town. Probation in one study will deprive a student of unex-

cused absences in all other studies. *In every case probation shall remain in effect until removed by the Absence Committee.*

8. A student who, after being placed on probation, shall incur further unexcused absence from required exercises in the same study in which he has been delinquent, shall be suspended on vote of the Absence Committee for a period of not less than ten days. While under suspension a student, if he lives away from Burlington, shall be required, in case the Absence Committee so direct, to return to his home. If his home is in Burlington, he shall be required to absent himself from the University grounds.

9. No student may be absent from Burlington, when such absence involves failure to attend any required exercise, without the permission of the Absence Committee; and leave of absence for the purpose of attending the exercises of any students' organization must also be obtained beforehand from the Committee.

10. After a Recess work will be resumed with the first afternoon exercise.

11. For one day before and after a Recess each absence shall count as two.

12. Excuses for absence must be put in writing, dated and signed, and deposited with the Secretary of the Absence Committee. Such excuses must be presented within two weeks after the absences are incurred, otherwise they will not be considered by the Committee. In case of sickness, the Committee may require the certificate of a physician.

ATHLETICS

1. No athletic contest shall take place before four o'clock in the afternoon on any day but Saturday.

2. All arrangements or schedules for contests to take place out of Burlington must be submitted for approval to the Athletic Committee.

3. At least two weeks before an intended contest, the manager of any athletic organization shall submit to the Athletic Committee for its approval a list of candidates for the team.

No student will be permitted to join or continue as a member of any athletic, musical or other similar college organization unless he maintain a fair standing in all the studies of his course. The membership of such organizations shall be subject to the approval of the Committee on Studies.

Such students as pursue only a partial course of study may not become members of students' organizations except by vote of the Faculty. They are required to drill unless excused by the Faculty.

EXAMINATIONS

At the close of each half-year all students are examined in the studies of that half-year. These examinations may be written, or oral, or both, at the discretion of the Instructor. The results of these examinations are recorded and a transcript of each student's record is sent to the parent or guardian.

Those whose scholarship exceeds the minimum pass-mark, 60 per cent, are grouped in four classes, designated by A, B, C, and D. A being the highest. Those who fail to reach a standing of 60 per cent. are assigned to a group designated by X or x.

Any matriculant who fails in the regular examination in any subject, and fails also to pass a re-examination in that subject within one year, is considered a Special student, and will be so classed in the Annual Catalogue. A special student may be at any time restored to regular standing by vote of the Faculty, upon his making up all arrears of work and presenting a satisfactory explanation of his failure.

A Senior who fails to clear off all delinquencies of the first three years by the end of the first-half of his fourth year, thereupon ceases to be a candidate for a degree.

Hereafter the Faculty will recommend for Graduation *only those students whose work is completed by 6 P. M. of the Wednesday preceding Commencement.*

RELIGIOUS SERVICES

The Institution, while not connected with any particular denominational body, and having members of many communions in its Board of Instruction, aims to impress religious truths and obligations upon all students. A responsive Religious Service is held every morning in the College Chapel, which the students are required to attend.

A flourishing Young Men's Christian Association of students is maintained, and is in close union both in sympathy and co-operative work with the Young Men's Christian Association of the city. The young women of the University also maintain a similar organization. The numerous churches of the place give to the students hospitable welcome to their services and activities. A voluntary Bible Class of students is conducted by the President on Sunday afternoons.

HONORS

Honors may be awarded at graduation for General High Standing in Scholarship, and also for conspicuous attainments in any one of the departments named below.

The candidate for Honors in general scholarship must have attained grade A in at least one-half of his work, grade B in at least one-half of the remainder, and have fallen below grade C in no department or subject.

Honors may be granted by the Faculty for unusual proficiency in any of the subjects following: Greek, Latin, French, German, English, History, Philosophy, Political Science, Mathematics, Biology, Chemistry, Physics, Mechanics, under these conditions: The candidate must have taken with credit the equivalent of six three-hour courses (i. e. eighteen lecture "hours" or "periods" extending through the year) in the subject offered, or in such cognate subjects as may have been designated or accepted by the Head of the department in which honors are sought. He must also have passed satis-

factorily a special examination in such additional work as may have been accepted or assigned by the Instructor ; or have presented a satisfactory thesis on a subject previously approved ; or have fulfilled both these conditions, as the Instructor in charge of the department may determine.

Applicants for Honors in special fields must make application to the Faculty in writing not later than November 1 in their Senior year ; and must present their theses and be ready for the special examination not later than May 10.

The Honors awarded at graduation shall be indicated on the commencement program, and the graduate who wins Honors for general high standing may have the words *cum laude*, or *magna cum laude*, inscribed on his diploma, the special addition to be determined by vote of the Faculty.

On the morning of Commencement Day an Honor List shall be published, containing the names of all who have gained honors at graduation ; of all who have won prizes during the year ; of those who are appointed to speak at Commencement ; and of such other graduates as may have presented essays or theses of conspicuous merit. This shall be posted on the official Bulletin Board and in the Library, and copies shall be placed on sale. This List shall also be printed in the next annual catalogue, with the names of the speakers on Founder's Day, and of those graduates whose proficiency in Military Art and Science has gained for them a recommendation to the Adjutant-General of the State and to the War Department of the United States.

DEGREES

For the degrees of Bachelor of Arts and Bachelor of Philosophy, see page 15.

DEGREES IN SCIENCE

The Degree of Bachelor of Science in *Civil Engineering* or in *Electrical Engineering*, or in *Mechanical Engineering*, is conferred upon stu-

dents in the department of Engineering, who shall complete the courses of study corresponding respectively to these titles.

The Degree of Bachelor of Science in *Chemistry*, is conferred upon the completion of the work required by the Department of Chemistry.

The Degree of Civil Engineer may be conferred upon Bachelors of Science of this University, who have taken the Bachelor's degree for work in Civil Engineering, if they furnish satisfactory evidence that they have pursued further technical studies for at least one year, and in addition have engaged in professional work in positions of responsibility for another year.

The first of the above requirements may be satisfied by pursuing at the University, under the direction of the Faculty, a prescribed amount of study for a time, not necessarily consecutive, equivalent to a college year. If the candidate does not reside at this University, his course of study must be approved in advance by the Professor of Civil Engineering, and he must prepare a satisfactory thesis on some engineering topic, to be presented together with a detailed account of his professional work one month at least before the date of the annual Commencement at which he expects to receive his degree.

The conditions upon which the Degrees of Electrical Engineer and Mechanical Engineer are conferred upon Bachelors of Science of this University, who have taken these degrees for work done in Electrical Engineering and Mechanical Engineering, are analogous in character and amount to those given for the degree of Civil Engineer.

In the Department of Agriculture the degree is Bachelor of Science in *Agriculture*.

THE MASTER'S DEGREE

I. The degree of Master of Arts, or Master in Science, may be conferred upon resident graduates of one year's standing of this or any other reputable college, and upon non-resident graduates of two years' standing of this University, who shall pursue a course of liberal study (not professional) subject to the approval of the Faculty.

2. Candidates for either degree will be required to present a thesis upon some branch of liberal study pursued since graduation, and to pass an examination before the Faculty.

3. The thesis must be presented at least two weeks before Commencement, and be approved before the candidate shall be admitted to examination.

4. The thesis must be written on paper of uniform size and description, and must be accompanied by an analytical table of contents and a full list of authors consulted. A copy of the same shall be furnished to be deposited in the University Library.

5. The examination shall be both written and oral, and copies of examination papers shall be kept on file at the Library. The examination shall be conducted by a committee of the Faculty, who shall appoint the time and place of examination, decide upon the merits of the candidate, and, if they deem him worthy, recommend him to the Trustees for graduation.

Students who are not candidates for a degree may be awarded Certificates for Proficiency in recognition of the work which they have done.

EXPENSES

The Tuition Fee is \$60 per annum, one-half payable at the close of each half-year.

The annual fee of \$20 for incidental expenses is charged against all students, one-half payable at the close of each half-year. This fee is a commutation sum for charges formerly made under several headings, and *does not include charges for breakages, damages, etc.*, which are assessed upon the perpetrators, or, when they are unknown, upon the whole body of students.

Every student upon entering the University is required to pay a Registration Fee of \$10. The payment of this completes the requirements for admission, and is in lieu of the first half-yearly installment of the annual fee.

All students pursuing Laboratory courses are required to pay for material and breakage. This fee varies, but has averaged in the department of Chemistry \$15 besides breakage, in that of Mineralogy \$5, in that of Mechanics \$5, and in the Biological laboratories \$1.50, for the half-year. Each student must in addition pay for his own breakage.

Every student pays an annual fee of \$2 for supplying the Reading Room with periodicals.

A fee of \$8 is charged for the Diploma given at graduation, and a fee of \$5 for a Certificate of Proficiency.

An ordinary Scholarship cancels the amount of the tuition fee; a State Scholarship both the tuition and the annual fees. But no student shall have his scholarship credited upon his bills while his college work is in arrears, or while any charges stand against him on the Treasurer's books.

Special Students are not eligible to scholarships. They will be charged \$10 a half-year for each full course of study (3 hours or more), and \$5 for each half course (2 hours or less); \$5 for the use of the Library, and \$5 as Registration fee; but in no case shall a Special student be required to pay more than the full tuition fee.

PAYMENT OF BILLS

Students temporarily absent from the University are charged as if present. Students entering an advanced class are required to pay one-half of the back tuition, unless from another college. Interest at the rate of six per cent. will be charged upon all bills from the day on which they become due.

All students will hereafter be required at the beginning of each collegiate year, before joining their respective classes, to present to the Committee on Studies the Treasurer's certificate that they have paid up all arrearages.

ROOMS AND ROOM RENT

Room rent in the old College dormitories ranges from \$15 to \$37.50 per year, according to the location of the room and the number of the occupants. This does not include fuel and lights.

The students' rooms are furnished at the expense of the University. Students need to provide only carpets, mattresses, bed clothing and chamber ware. The beds are furnished with wire mattresses. All rents include care of room by college servants.

THE CONVERSE HALL

The Converse Hall, completed in the year 1895, is an elegant and substantial four-story edifice in the collegiate-gothic style, built of Rutland marble, furnishing handsome suites (single and double) for about ninety students. It is heated by steam, finished throughout in hard wood and supplied with all necessary furniture in oak. There is a fireplace in each study and all the rooms can be lighted by electricity. Each of the three sections is supplied with bathing facilities, and one of them contains a Common Room for general uses. Beside the furniture supplied in the old dormitories, the bedrooms here are furnished with hair mattresses, bolster, pillow and blankets. Rents for single suites range from \$15.00 to \$80.00 ; for double suites, from \$35.00 to \$70.00 for each occupant. All rooms are cared for by college servants.

The fine old mansion on Main street, lately occupied by Mr. Lawrence Barnes, and formerly by Gov. Van Ness, has been purchased and fitted up for the use of the young women students. It is surrounded by ample grounds and commands a delightful prospect. The household is under the supervision of a matron and a housekeeper.

There is a Commons Hall on the College grounds at which good table board is furnished to students at cost. The rate of board at present is \$3.00 per week, or \$2.75 if paid in advance.

Good board with room may be obtained in private families at \$4.00 to \$5.00 a week. Other expenses, for clothing, traveling, books, stationery, society and class taxes, etc., vary with the circumstances and habits of the student.

The Central Vermont and Rutland Railroads and the Champlain Transportation Company carry students for fare at mileage rates.

THE WILLIAMS SCIENCE HALL

completed in 1896, is a fire-proof structure of granite, brick, steel and artificial stone, with rich terra cotta decoration. It is of three stories, with a well lighted attic available for laboratory work, and a basement also adapted to the uses of the Scientific Departments. It is supplied with the latest and best devices for heating and ventilation and for practical laboratory work, and is occupied by the Chemical, Physical, Electrical and Biological sections of the University.

SCHOLARSHIPS

Scholarships, affording aid to students of limited means to the amount of tuition, have been endowed as follows :

The Washburn Scholarships, twelve in number, by Daniel Washburne, M. D., of Stowe, for the benefit of young men studying for the Christian ministry, or, in default of such applicants, of other deserving young men.

The Louisa H. Howard Scholarships, seven in number, by Miss Louisa H. Howard of Burlington.

The Sarah B. Jacobs Scholarships, seven in number, by Mrs. Sarah B. Jacobs, of Boston, for the benefit of graduates of Brigham Academy, at Bakersfield, Vt.

The Bertman Scholarship, by John Bertman, Esq., of Salem, Mass.

The Green Scholarship, by Horace Green, LL. D., of New York city.

The Fairbanks Scholarship, by the Hon. Erastus Fairbanks, of St. Johnsbury.

The Parker Scholarship, by the Rev. Charles C. Parker, D. D., '41, in memory of himself and son, Charles Edmund Parker, '67.

The Westford Scholarship, by the Hon. L. P. Poland, LL. D., of St. Johnsbury.

The Converse Scholarship, by John H. Converse, '61, of Philadelphia.

The Edwin Wright Marsh Scholarship, endowed by Charles P. Marsh, Esq., '39, of Woodstock, in memory of his son, of the class of 1872, for the benefit, in the first instance, of students from the town of Weathersfield, Vt.

The Charles Munson Marsh Scholarship, by the same, available first for students from Woodstock, if such apply.

The Charles P. Marsh Scholarships, five in number, available first for needy and worthy young men or women from the County of Windsor.

The Lizzie S. Converse Scholarship, by bequest of Miss Lizzie S. Converse of Burlington, for poor and deserving students in the Classical department.

The Rich Scholarship, by Charles W. Rich, Esq., '36, of St. Albans.

The Rich Scholarship, by the same, for the benefit, first, of students from the town of Swanton, Vt.

The Isle LaMotte Scholarship, by N. S. Hill, Esq., of Burlington, for the benefit of students from Isle LaMotte, and failing such, from Craftsbury.

The Shaw Scholarship, by the Hon. William G. Shaw, of Burlington, of the class of '49.

The Class of '61 Scholarship, endowed and made available in 1891.

The Samuel Sidney Smith Scholarship, by Mrs. S. S. Smith, of Burlington.

Appointments are made to these scholarships by the Faculty from term to term, and are conditioned on the attainment of a certain grade of scholarship and on exemplary conduct. The benefit of a scholarship is forfeited and back tuition becomes due, if a student abandons his course unnecessarily, or to join another college.

The endowment of additional scholarships would enable the University to extend its benefits to those who can not otherwise afford the expense of a four years' maintenance in College. The minimum endowment is one thousand dollars. The annual payment of \$60 relieves one student from the payment of tuition alone ; of \$80, from the payment of tuition and annual fees.

STATE SCHOLARSHIPS

Thirty State Scholarships, covering tuition and incidental expenses in the Classical or Scientific Departments, are now available. Nomination to these scholarships rests with the senators from the several counties, to whom application should be made.

THE JEDEVINE FUND

now available in part, is loaned in small sums to "poor and deserving students" in the Classical and Scientific Departments, who are residents of Vermont. The loans must be well secured, and must be repaid within a specified time after the student leaves college. Applications may be made to the Treasurer of the University.

PRIZES

THE BISSELL PRIZE FOR PROGRESS*

A prize of \$25 will be awarded to the student who, in the judgment of the Faculty, is entitled to the greatest credit for effort and attainments in his studies upon completion of the Junior year.

*Named for the Rt. Rev. Wm. H. A. Bissell, D. D., 1836.

THE KINGSLEY PRIZES FOR ELOCUTION

Prizes of \$25, \$15 and \$10 are offered to members of the Sophomore and Freshman classes for the best declamation of passages in oratorical prose.

THE JULIA H. SPEAR PRIZES FOR YOUNG WOMEN.

Prizes of \$25, \$15 and \$10 are offered to young women of the University for excellence in reading.

THE PHELPS PRIZE.

A prize of \$50 in gold, endowed in memory of the late Edward Haight Phelps, C. E., class of 1872, will be awarded by the Faculty each year at commencement to a graduate of that year in Civil Engineering who shall have exhibited conspicuous merit in professional studies, and high and noble traits of personal character. A special certificate will accompany the prize, indicating the conditions upon which it has been awarded. In case no award shall be made in any year, the same amount of money will be expended in the purchase of books on the subject of Civil Engineering for the use of the Department.

THE HOWARD PRIZES

Mrs. Hannah T. Howard of Burlington left by will \$1,200, the income of which is to be awarded in prizes. From the income of this fund, three prizes of \$25 each will be awarded in 1899, to candidates for admission to the Freshman Class who shall pass the best entrance examinations in Greek, in Latin and in Mathematics.

THE LIBRARY

The Library of the University, selected with special reference to the several departments of study, contains 42,550 volumes, besides the 12,507 volumes that form the library of the late Hon. George P. Marsh, a collection of the highest value in the departments of Philology, European Literature and History, and Physical Geography. This Collection is the gift of the late Hon. Frederick Billings of Woodstock, and is deposited in a room especially provided and elegantly appointed to receive it. The whole library has been carefully arranged by subjects, on the Dewey system, with accession and shelf catalogues. A Card Catalogue on the dictionary plan is in progress, being already complete for the subjects, Literature, Philology, History, Philosophy, Religion, Natural Science and portions of Sociology, Industrial Arts and Fine Art. A full Catalogue of the Marsh collection, by authors and subjects, has been published.

The beautiful and commodious Billings Library, erected at a cost exceeding \$150,000, with a shelving capacity of 100,000 volumes, contains the general library of the University and the special collections, with the exception of such Scientific works as are deposited in the Reading Room of the Williams Science Hall.

The current periodicals with many cyclopædias and other works of reference are to be found in the Central Hall, while the apse, originally designed for the Marsh Collection, is now appropriated to bound sets of periodicals, and such volumes as are reserved for special class use.

The Donations received during the year have been numerous and unusually valuable.

A handsome set of the Stevens Facsimiles of Manuscripts in European Archives, 1773-1783, 25 folio volumes, was the joint gift of Col. W. Seward Webb, M. D., John H. Converse, 1861, Major Z. K. Pangborn, 1851, Robert D. Benedict, 1848, and Benjamin F. Stevens,* Esq., of London, the editor and publisher. This great

*Mr. Stevens was born in Barnet, Vt., and was for a time a member of the class of 1857.

work is an absolutely faithful exhibition of the diplomatic history of our Revolutionary War. It is a monument to the zeal and energy of the editor, and reflects honor on the State which furnished to England a man capable of carrying to a successful issue so arduous an undertaking.

General Rush C. Hawkins of New York city has just presented to the University his large collection of books and pamphlets relating to the Rebellion. This extends to about 1450 titles, and includes histories general and special, biographies, military criticism, general orders, rosters, poetry, stories, lampoons, etc., etc. The Confederate statutes, reports, and orders are here; also Southern school books, novels and poetry. The collection is one of great value to the student of the Civil War.

Another addition of original historical material of the highest value is The Jesuit Relations and Allied Documents, a series expected to extend to seventy volumes, of which thirty-two have already appeared. For this set—indispensable in the investigation of early North American History, and before the appearance of this edition absolutely unobtainable—the Library is indebted to a friend who chooses to remain unknown.

Mr. Russell Wales Taft, 1898, has presented a large collection, mostly bound, of files of agricultural papers, 160 volumes in all, including the Country Gentleman, Genesee Farmer, Albany Cultivator, etc.

The Hon. G. G. Benedict, 1847, has contributed 167 volumes besides nearly 1000 numbers of various periodicals.

From the library of the late Rev. M. N. Hutchinson of Burlington have been received 245 volumes, chiefly theological, the gift of his sons.

The University has recently secured the library of the Hon. L. E. Chittenden of New York city, who during the past fifty years has made a specialty of collecting such literary material as concerned the State of Vermont, and particularly its early history. The col-

lection embraces over 2600 titles, and supplies much rare and valuable material for original researches in the early history of the State. It includes also numerous works on engraving, with nearly 200 examples carefully selected to illustrate the progress and the triumphs of the art.

This purchase was rendered possible by a special subscription of \$3500 from a few friends of Mr. Chittenden and of the University. The Donors, to whom the University—and the State as well—are so much indebted, are the following :

Charles A. Hoyt, esq.....	\$500 00	E. N. Foss, esq.....	\$100 00
Fred B. Jennings.....	250 00	A. B. Chandler, esq.....	50 00
Gen. J. B. McCullough.....	250 00	Col. R. J. Kimball.....	50 00
Col. LeGrand B. Cannon...	250 00	Hon. Benj. F. Fifield.....	50 00
Hon. Levi P. Morton.....	250 00	Rev. W. W. Livingston...	5 00
John H. Converse.....	500 00	Hon. Edward Wells.....	50 00
Edward H. Williams, M. D.	200 00	Hon. Wm. J. Van Patten..	50 00
Hon. Darwin P. Kingsley....	100 00	Mrs. Julia Billings.....	372 50
Hon. E. J. Phelps.....	100.00	Frederick Billings.....	372 50

Of the many individual donors to the Library during the past year, in addition to those named above or for additional gifts, we are under special obligation to the following :

R. D. Benedict, 1848	Edward C. Loomis
Hon. L. E. Chittenden	Hon. J. S. Morrill, LL. D.
John H. Converse, LL. D., 1861	J. W. Preston, esq.
Rev. Edward T. Fairbanks, D. D.	Andrew H. Smith, M. D.
Hon. S. A. Green, M. D.	Benj. F. Stevens, esq.
Hon. H. W. Hill, 1876	Hon. E. B. Taft, 1871
Henry Holt, esq.	Charles A. Hoyt, esq., 1858

An excellent Portrait of Ira Allen, the Founder of the University, was presented at the close of the last college year by Charles A. Hoyt, esq., 1858. It is a copy, enlarged by Thomas W. Wood of New York, of an exquisite miniature, the only likeness of General Allen known to be in existence.

The whole number of gifts received since the last issue of the catalogue is a little in excess of 3000 volumes and 2100 pamphlets.

The income from the various funds available for the increase of the Library, including Miss Maria Loomis' bequest of \$10,000, amounts to a little over \$1,000 a year.

The Library is open during term time from 8.30 A. M. to 12.30 P. M., and from 2 to 6 P. M. on week days for consultation and drawing books, and for reading and reference on Sunday afternoons from 2 to 4 P. M., and every week day in vacation from 9 A. M. to 12 M., and from 2 to 4 P. M. The Reading Room of the Library is supplied with the leading scientific and literary periodicals. Persons not connected with the University have free use of the Library for consultation, and on special permission from the President or Librarian, are allowed to draw books. Students have also the use of the Fletcher Free Library, a collection of 25,000 volumes, for loan and reference, which is open daily.

The Library Committee solicits gifts of books and pamphlets relating to Vermont History and the lives of natives of Vermont; also copies of all books written by Vermonters, or published in the State, and of files of State papers, especially of the first half of this century or earlier.

The Committee desires also to collect all books, essays, pamphlets, etc., written by Officers or Alumni of the University, and would esteem it a great favor if such writings should be sent to the Library for permanent preservation.

~~By~~ *Of the Annual Catalogues of the University supposed to have been issued from 1810 to 1830, inclusive, the Library possesses only those of 1822, 1823 and March, 1825. The alumni and other friends are earnestly requested to help in completing our file.*

THE MUSEUM.

The various collections exhibited in the Museum building, though primarily gathered and arranged with reference to study and for illustrating lectures, are of general interest. The rooms are accessible to the public on week days from 9 A. M. until 5 P. M. For the general guidance of visitors the following outline of the arrangement of the specimens is given :

On the first floor is the Mineralogical collection, which contains several thousand specimens representing nearly all the species mentioned in the manuals. Some of the specimens are unusually fine, notably a splendid series of Sicilian sulphurs, celestes and associated minerals collected by the Hon. George P. Marsh, and a number of Hartz Mountains and other European Minerals collected by the Rev. Edward Hungerford. There is also an extensive series of the rocks of Europe and a very complete set of the lavas of Vesuvius, the gift of Mr. Hungerford. A nearly complete set of the rocks and marbles of Vermont and several hundred specimens of foreign marbles are also place in this room, though only a part can be shown for lack of space. Besides foreign birds and mammals, there is a nearly complete representation of the mammals, birds and fishes native to this State, and an alcoholic collection of the reptiles and fishes of the United States. There is a smaller collection of mounted skeletons of vertebrates and numerous crania and other bones, including a perfect lower jaw of the sperm whale. The nests and eggs of many of the birds common in Vermont have been obtained and most of them are arranged in cases. On this floor is a fine bas relief, dating from about 875 B. C., taken from one of the palaces at Nimroud, the gift of Mr. John H. Converse.

On the second floor of the Museum building is a large collection of shells made up of selections from the original Museum collections and from those of the Hon. L. E. Chittenden and Prof. G. W. Benedict, which were given to the Museum a few years ago. To these the fine collection of Dr. William C. Hickok has recently been

added. Smaller but good collections of corals, echinoderms and sponges occupy cases near the shells. Of these the living forms are in many cases shown by the beautiful Blaschka glass models. The wall cases on this floor contain the collection of fossils. This is primarily intended to illustrate the geology of Vermont and all the horizons found in the State are well represented, but all the epochs recognized in the manuals are more or less fully represented by specimens from various American and European localities. Several important additions to this part of the Museum have been made during the past few years. Besides several hundred specimens of coal plants from the Carboniferous of Pennsylvania and Illinois, a considerable series of plant fossils has been obtained from the Cretaceous and Tertiary of the West. There has also been recently added a small, but valuable, collection of skulls and other parts of the skeletons of Vertebrates from the western Tertiary, including some very fine specimens of fishes from the Wyoming Green River shales.

The Archaeological collections include the largest and by far the most important series of objects illustrating the prehistoric times of Vermont that has been brought together. There are several thousand specimens of the work of the former occupants of the Champlain Valley in stone, bone, copper, shell and earthenware, some of them very rude, others as finely formed and perfectly finished as the best from other parts of the United States. Smaller, but not unimportant, collections from the Ohio and Mississippi Valleys and from the Pacific coast are also displayed.

The pottery of the mound-builders and of ancient and modern Pueblo tribes is represented by numerous examples and a very interesting collection consisting of several hundred jars, dishes and vases, stone and bone implements, basket work, bits of cloth, skulls, etc., etc., from cliff houses in Mancos Cañon, Colorado, has recently been placed in cases. There are a few specimens of stone and pottery from Mexico and a much greater number from pre-Columbian graves in Nicaragua.

The Ethnological collection is constantly becoming of greater interest and value. It is placed by itself in a room recently added to the main building. There are small, but in some cases at least very choice, collections of the weapons, implements and ornaments of the natives of Australia, Polynesia, Africa and Oriental countries. The very fine Reed collection of objects collected among the Sioux Indians is of special interest, and similar specimens from the southern tribes are also exhibited.

In addition to the collections already mentioned there is a large herbarium containing a complete series of Vermont plants as well as thousands of specimens from other parts of the United States and foreign lands. This is placed in a room specially prepared for it in the Williams Science Hall. There are also collections of native and foreign woods, of fruits and seeds, with several thousand specimens of insects, chiefly from New England and the northern United States, and a good collection of Greek, Roman and modern coins. These latter collections are none of them located in the Museum building, but may be examined upon application to the Curator.

THE CANNON COLLECTION

The collection of Oriental objects obtained in India by the late Henry LeGrand Cannon and by him bequeathed to the University, has now been received from his executors, and is displayed in a room added to the Museum by special provision of the donor.

The Collection includes fabrics and draperies, many of them exquisitely embroidered; bronze and porcelain lamps; chairs, stand, and screen of teak-wood elaborately carved; numerous articles of silver, chiefly ornamental; musical instruments; household articles of brass and iron, and other objects which cannot be catalogued here; armor, Indian, Persian and Japanese, some of it elegantly wrought with inlays of gold and silver; various articles of Thibetan origin, a shrine, prayer-wheel, amulets, etc., with fine specimens of European arms of the 15th and 16th centuries.

Should visitors find the Museum building closed, a key may be obtained at the Library.

THE PARK GALLERY OF ART

TRUSTEES

PRES. M. H. BUCKHAM, *President ex-officio*

PROF. H. A. P. TORREY, *Secretary*

HON. F. C. KENNEDY, *Treasurer*

HON. G. G. BENEDICT

COL. LEGRAND B. CANNON

HON. E. J. PHELPS

It is the aim of the Trustees of the Art Gallery to gather into a small but good collection, such works of art, paintings, engravings, models, casts, photographs, etc., as will serve to illustrate the history and the principles of both ancient and modern art. The nucleus of such a collection has already been secured. Contributions are solicited in any of the following classes, or funds for the purchase of the same :

1. Paintings—not copies—by either American or foreign painters.
2. Works of Sculpture: statues, busts, reliefs, medallions, whether originals or copies made under the eye of the sculptor.
3. Original drawings.
4. Casts from noted sculptures. These are especially valuable in art studies and are comparatively inexpensive.
5. Bronzes, terra cottas, enamels, faiences, ancient vases, works in metal and glass, tapestries, etc., in which the artistic merit is conspicuous.
6. Valuable engravings, wood-cuts and etchings.
7. Photographs from originals of the great masters in painting, and from the best works in sculpture and architecture.
8. Works on art, biographies, dictionaries, criticisms, etc. The names of donors will be inscribed on works of art presented to the gallery.

DEPARTMENT OF MEDICINE

FACULTY

MATTHEW HENRY BUCKHAM, D. D.,
President.

JOHN ORDRONAU, M. D., LL. D.,
Emeritus Professor of Medical Jurisprudence.

JOEL WILLISTON WRIGHT, A. M., M. D.,
Emeritus Professor of the Principles and Practice of Surgery.

ALBERT FREEMAN AFRICANUS KING, A. M., M. D.,
Professor of Obstetrics and Diseases of Women.

ASHBEL PARMELEE GRINNELL, A. M., M. D.,
Professor of the Theory and Practice of Medicine; Consulting Physician to the Mary Fletcher Hospital and to the Fanny Allen Hospital.

RUDOLPH AUGUST WITTHAUS, A. M., M. D.,
Professor of Chemistry and Toxicology.

JOHN HENRY JACKSON, A. M., M. D.,
Professor of Physiology and Microscopic Anatomy.

ABEL MIX PHELPS, M. D.,
Professor of Surgery; Consulting Physician to the Mary Fletcher Hospital; Surgeon to the Charity Hospital, N. Y. City.

HENRY CRAIN TINKHAM, M. D.,
Dean of the Faculty; Professor of General and Special Anatomy; Attending Surgeon to the Mary Fletcher Hospital.

JAMES NATHANIEL JENNE, M. D.,
Professor of Materia Medica and Therapeutics, and of Clinical Medicine.

JOHN BROOKS WHEELER, A. B., M. D.,
Adjunct Professor of Surgery; Professor of Clinical and Minor Surgery; Attending Surgeon to the Mary Fletcher Hospital; Consulting Surgeon to the Fanny Allen Hospital.

PATRICK EUGENE McSWEENEY, M. D.,
Adjunct Professor of Obstetrics; Attending Physician to the Mary Fletcher Hospital and the Fanny Allen Hospital.

FREDERICK RUBERT STODDARD, M. D.,

Adjunct Professor of Materia Medica; Consulting Physician to the Fanny Allen Hospital.

LYMAN ALLEN, A. B., M. D.,

Adjunct Professor of Physiology.

FREDERICK WHEATON BAYLIES, M. D.,

Adjunct Professor of Chemistry.

HARRIS RALPH WATKINS, A. B., M. D.,

Demonstrator of Anatomy; Attending Physician to the Mary Fletcher Hospital.

EVERARD ALLEN WILSON, M. D.,

Assistant Demonstrator of Anatomy.

PROFESSORS OF SPECIAL SUBJECTS

A. PALMER DUDLEY, M. D.,

Professor of Surgical Diseases of Women.

JOSEPH HATCH LINSLEY, M. D.,

Professor of Histology and Pathology; Pathologist to the Fanny Allen Hospital.

JAMES RAYNOR HAYDEN, M. D.

Professor of Genito-Urinary and Venereal Diseases; Visiting Surgeon to City Hospital, Blackwell's Island.

FRANK WILFRED PAGE, A. M., M. D.,

Professor of Diseases of the Mind; Superintendent of the Vermont State Asylum.

DILLON BROWN, A. M., M. D.,

Professor of Diseases of Children.

JUDSON EARL CUSHMAN,

Professor of Medical Jurisprudence.

GEORGE THOMAS JACKSON, A. M., M. D.,

Professor of Dermatology.

MARSHALL COLEMAN TWITCHELL, M. D.,

Professor of Diseases of the Eye, Ear and Throat; Assistant Ophthalmologist to the Mary Fletcher Hospital.

EUGENE FULLER, M. D.,

Professor of Genito-Urinary and Venereal Diseases.

INSTRUCTORS

HORATIO NELSON JACKSON, M. D.,

Surgery.

SAMUEL ERASTUS MAYNARD, M. D.,

Theory and Practice of Medicine, and Physical Diagnosis.

FREDERICK ELLSWORTH CLARKE, M. D.,

Obstetrics and Gynaecology; Consulting Physician to the Fanny Allen Hospital.

ANNOUNCEMENT, 1899

The Medical Faculty of the University was not fully organized until 1822, in the fall of which year was given the first full course of medical lectures. Twelve successive classes were graduated in the years 1823-34. Medical instruction was then suspended until the reorganization of the faculty in 1854.

The forty-sixth annual course of lectures will begin Thursday, January 5, 1899, and continue until June 29. With the session of 1898 this College inaugurated the *four-year system of graded study* as a requisite for graduation. To carry out this plan a new lecture room for recitations has been fitted up, laboratories and apparatus improved, and additional instructors secured.

The Medical College Building, given to the University by the late John P. Howard, is a substantial brick edifice on Pearl Street, front-

ing the College Park. The lecture-room amphitheatre will seat comfortably three hundred and fifty students.

The laboratories for Practical Chemistry, Physiology, Histology and Bacteriology, and the Dissecting Room for Practical Anatomy, are ample in size, and supplied with the modern conveniences and apparatus required for chemical experiments and physiological and anatomical demonstrations.

The Museum of the College is spacious, well lighted, contains a large and carefully arranged collection of specimens and preparations—many of them rare—illustrating both normal and abnormal structures. The Museum is always open to students.

During his four years' study the student will receive instruction in the following branches: Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice, Obstetrics, Surgery, Diseases of Children, Ophthalmology and Otology, Pathology, and Bacteriology, Neurology, Diseases of the Mind, Hygiene, Medical Jurisprudence, Venereal Diseases, Dermatology, Laryngology, and Gynæcology. This instruction is given by scholastic and clinical lectures, recitations and laboratory work. The curriculum includes laboratory courses in Urinary Analysis, Histology, Pathology and Bacteriology, and practical work in Physical Diagnosis, Surgery and Demonstrative Obstetrics, each student being *required* to take all these courses, unless he presents evidence of having taken the same in some other recognized institution. (See Requirements for Graduation, p. 100.)

CLINICAL ADVANTAGES

The Mary Fletcher Hospital, erected and endowed by the generosity of the lady whose name it bears, was opened in 1876 for the treatment of patients. Additions and improvements have been made from year to year, until now it is unsurpassed in its appointments for the care of medical and surgical cases.

The Hospital consists of a large and elegant administrative building with many rooms for private patients, and two ample pavilion wards. In a second building connected with the wards and administrative building by a corridor is a large amphitheatre capable of seating two hundred persons. There are also an anæsthetizing and a recovery room opening into the amphitheatre. Rooms for outpatients are also attached to the building. In fact every arrangement for Clinical Instruction is provided. Medical and Surgical Clinics will be held in the amphitheatre during the entire session.

REQUIREMENTS FOR ENTRANCE

Applicants will be required to pass an Entrance Examination in *Arithmetic, Grammar, Geography, Orthography, American History, English Composition and Elementary Physics*, before they may be regularly enrolled as students in good standing in this department. But applicants who may have failed in one or more branches at these examinations may be enrolled as *conditioned* students ; they must make up the deficiency however during the first year, before they can be enrolled as students in regular standing.

EXCEPTIONS :—Such entrance examination will not be required of applicants of any of the following classes :

1. Those who declare themselves *in writing* not to be candidates for the Degree in Medicine from this College.
2. Those who have received the Bachelor's Degree from a College or University which maintains a satisfactory academic standard.
3. Those who have passed satisfactorily the entrance examination to the Academic Department of any College or University which maintains a satisfactory academic standard.
4. Those who have passed the entrance examination to a Medical school having requirements for entrance equivalent to those adopted by this Faculty.

5. Those who have received a Medical Student's Certificate from the Regents of the State of New York, or from any similarly constituted authority in other States.

6. Those who have received a Diploma or a Certificate for any ten studies from the Regents of the State of New York, or from any similarly constituted authority in other States.

7. Those who have satisfactorily completed a three years' course in a High School, Normal School or Academy.

Examinations for entrance will be held January 23 to 27, March 27 to 31, and June 12 to 16, 1899. Detailed information in regard to Examinations for admission to the First, Second or Third year of the course, and also in regard to the conditions of advancement in course from year to year, will be found in the special Announcement of this Department.

REQUIREMENTS FOR GRADUATION

Four full courses of lectures of at least twenty weeks each, the last at this College, will be required of all students who matriculated subsequently to January, 1898. Those who matriculated before this date will be required to attend *three* full courses, according to the regulations in force before the four-year system was adopted.

No period of practice will be taken as the equivalent of any lecture course.

No candidate indebted to the College will be admitted to an examination.

Candidates for the degree of Doctor of Medicine must have attained the age of twenty-one years, and must present full certificates of the time of study, of age and of moral character. Each candidate is required to deposit his examination fee with the Secretary of the Faculty one month before the close of the session.

Before presenting himself for examination, and in addition to attendance upon the regular lectures, both scholastic and clinical, it is further required that he shall have pursued the study of Practical

Anatomy, by dissection, under the guidance of a demonstrator ; that he shall have taken at least one course of laboratory instruction in Urinary Analysis, in Histology, in Pathology and Bacteriology ; and one course of practical work in Physical Diagnosis, Practical Surgery and Demonstrative Obstetrics, either in this or in some other regular Medical College.

He must also pass satisfactory written or oral examinations in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice of Medicine, Surgery and Obstetrics before the Medical Faculty and Board of Medical Examiners appointed by the State Medical Society. But if he has previously passed the final examinations in Anatomy, Physiology, Chemistry or Materia Medica before this Faculty, he will not be re-examined in the branch or branches in which he has passed. But the Faculty reserves the right to re-examine students at the end of the fourth year upon all of the subjects taught during the four years, it being the intention of the Faculty to establish a final quiz at the end of the fourth year in order that graduates may be the better prepared for the examinations by State Licensing Boards.

The tickets and diplomas of Eclectic and Homœopathic, or Botanic Colleges, or the Colleges devoted to any special system of medicine, are considered irregular, and will not be recognized under any circumstances. Certificates from preceptors who practice any particular system of medicine, or who violate in any way the Code of Ethics adopted by the profession, will not be accepted under any circumstances, even if the preceptors be regular graduates in medicine.

Graduates of other regular Medical Colleges who desire a degree from this University, must pass a satisfactory examination in Anatomy, Physiology, Chemistry, Materia Medica and Therapeutics, Practice of Medicine, Surgery and Obstetrics.

No credit in time or in lectures shall be given any student by virtue of his degree in Pharmacy, or Veterinary Surgery.

Degrees *in absentia* are not conferred by this University under any circumstances whatever.

FACULTY PRIZES

The Faculty have established two Prizes for general proficiency in examination—a First Prize of Fifty Dollars, and a Second Prize of Twenty-five Dollars. The prizes will be awarded as follows :

The ten students who pass the best examinations for their degree will be allowed to compete in a written examination for the prizes ; of this number, the five who rank highest shall be called Honor Men, and will each receive a *Special Diploma of Honor*; and of these last, those who attain the first and second rank shall receive respectively the first and second prizes.

The Honor Men of 1898, were : Allen Bell Clement, Frank Chester Frisbie, John Harold Buffum, Ph.B., David Eugene Harriman and Chester Charles Beckley.

The First Prize was awarded to Allen Bell Clement ; the Second Prize to Frank Chester Frisbie.

FEES

Matriculation Fee, payable each term.....	\$ 5 00
Full Course of Lectures, each year.....	110 00
Single Ticket, for those who wish to take one or more subjects and not the whole course.....	20 00
Fee for graduation, payable once and not returnable.....	25 00

Graduates of other regular Medical Schools are admitted on payment of the matriculation fee and \$25.00.

Graduates of this school are admitted without fee.

Theological students are admitted on payment of the matriculation fee only, unless intending to graduate in medicine, in which case they will be required to conform to the above conditions.

All fees must be paid to the Secretary, and are payable in advance.

BOARD may be obtained for from \$3.50 to \$5.00 per week. Good accommodations can be found for students who wish to board themselves. Many adopt this method at a great reduction in expense. Students who intend to board themselves will find such bedding and culinary articles as they may require furnished with the rooms.

After registering, every student is furnished with a certificate entitling him to reduced rates on railroad and steamboat lines running into Burlington.

[For special arrangements of the Academic Faculty for the accommodation of intending students of Medicine, see pages 46 and 47.]

For further particulars address the Secretary,

B. J. ANDREWS, M. D.,

Mary Fletcher Hospital,

BURLINGTON, VT.

STUDENTS

SENIOR CLASS

NAME	RESIDENCE	ROOM
Max Walter Andrews	Cl <i>W. Berkshire</i>	349 College
Alfred Ray Atwood	Cl <i>Westfield</i>	100 Church
Warren Robinson Austin	LS <i>Highgate</i>	36 N. C. H.
Charles Alpheus Bigelow	LS <i>Bristol</i>	41 S. C. H.
Charles Francis Blair	Cl <i>Morrisville</i>	349 College
Carl Brigham Brownell	Sp <i>Burlington</i>	196 S. Willard
George Howard Burrows	Ch <i>Burlington</i>	The Richardson
Charles Ira Button	LS <i>Brandon</i>	187 Loomis
John Alden Chase	CE <i>Randolph</i>	42 M. C. H.
Clarence Lee Cowles	Sp <i>Craftsbury</i>	56 Colchester
Leon Ernest Daniels	Sp <i>Morrisville</i>	46 N. C. H.
Samuel Campbell Dunlop	Cl <i>Poultney</i>	7 S. C.
Ernest Julius Ewing	Cl <i>Clarendon</i>	40 Clarke
Frank Floyd Finney	LS <i>Hinesburgh</i>	195 St. Paul
Ruth Fisher	LS <i>Vergennes</i>	355 Pearl
Frank Keeler Goss	Sp <i>Vergennes</i>	39 Buell
Mary Isabelle Gregory	LS <i>Burlington</i>	56 Elmwood
Edward Pierson Hendrick	Sp <i>Springfield, Mass.</i>	21 S. C. H.
Charles Asahel Hubbard	LS <i>Whiting</i>	25 S. C. H.
Ada Almina Hurlburt	Cl <i>Burlington</i>	11 Weston
Ray Woodbury Huse	Sp <i>Montpelier</i>	40 Clarke
Frank Roland Jewett	Cl <i>Swanton</i>	23 M. C. H.
Wait Chatterton Johnson	Cl <i>Rutland</i>	25 S. C. H.

Ag, Ch, LS, indicate Agricultural, Chemical, Classical and Literary-Scientific Courses. CE, EE, ME, stand for Civil, Electrical and Mechanical Engineering. N. C., S. C., M. C., stand respectively for North, South and Middle College; N. C., H., S. C. H., M. C. H., for North, South and Middle Converse Hall.

STUDENTS

105

Guy Philbrick Lamson	Sp	Randolph	63 Buell
Robert Ashton Lawrence	Cl	Rutland	45 S. C. H.
Emily Wheelock Lucia	LS	Montpelier	215 Pearl
Belle Thayer Morse	Cl	Randolph	411 Main
Robert Bass Morton	EE	Randolph	42 M. C. H.
Mabel Nelson	LS	Burlington	118 Pearl
George Douglas Osgood	Cl	Montpelier	31 N. C. H.
Mary Crafts Paddock	LS	Craftsbury	335 S. Union
Charles Haswell Parker	LS	Burlington	325 S. Union
Russell Smith Page	Sp	Hyde Park	198 Pearl
John Oliver Presbrey	Sp	Burlington	109 Summit
Clarence Willard Richmond	Ag	Newport	46 N. Winooski
Katie Lena Russell	LS	Shelburne	23 Hickok
May Winifred Russell	Cl	Burlington	129 Loomis
Donald Harris Scribner	Cl	Hyde Park	42 S. C. H.
Jacob Kingsley Shaw	Ag	Northfield	15 Exp. Station
Eunice Dewey Smith	Cl	Barre	411 Main
Fanny Lydia Smith	LS	Shelburne	23 Hickok
Harry Warner Smith	Cl	Swanton	32 M. C. H.
Hermon Emerson Smith	LS	Middlebury	25 S. C. H.
Bessie Marian Stewart	LS	Bakersfield	8 S. Willard
Alvin Milton Taylor	Ch	Burlington	76 Chase
Mary Carr Tewksbury	LS	Randolph	411 Main
Byron Eugene White	Ag	Hardwick	15 Exp. Station
Edward Chapman Wright	Sp	Burlington	16 Grant

JUNIOR CLASS

Lee Clark Abbott	LS	Franklin, Mass.	27 N. Willard
James Hawley Aiken	Ch	Benson	415 Pearl
Dell Beeman Allen	LS	Burlington	52 N. Winooski
Fred Edgar Allen	Ag	Royalton	18 Exp. Station
Charles Hobart Atwood	EE	Burlington	27 Buell
Fannie Howe Atwood	LS	Burlington	27 Buell

Guy Winfred Bailey	Cl	<i>Essex Junction</i>	<i>Essex Junction</i>
Royden Eugene Beebe	Ch	<i>Burlington</i>	67 N. Union
Edward Cyril Bessette	CE	<i>Plattsburgh, N. Y.</i>	25 M. C. H.
Arthur Boyce	ME	<i>Winchendon, Mass.</i>	4 N. C.
John Henry Brackett	EE	<i>St. Johnsbury</i>	42 N. C. H.
Mary Tracy Brownell	LS	<i>Essex Junction</i>	191 S. Willard
Amy Maud Burt	LS	<i>Swanton</i>	483 Main
Frederic Percy Byington	EE	<i>Charlotte</i>	35 N. C. H.
Mary Annie Carley	Cl	<i>Springfield</i>	135 Loomis
Edith Louise Carpenter	LS	<i>Webster, Mass.</i>	80 College
John Grixston Currier	LS	<i>Rutland</i>	2 Colchester
John Morrill Downer	EE	<i>Stowe</i>	46 N. C. H.
Horatio Nelson Drury, jr.	Cl	<i>S. Burlington</i>	<i>S. Burlington</i>
Arthur Woodbury Edson	Cl	<i>Cavendish</i>	468 College
Delano Eugene Farr	Cl	<i>Bristol</i>	42 S. C. H.
Eliza Mabelle Farman	Cl	<i>W. Lebanon, N. H.</i>	411 Main
John Lowe Fort, jr.	LS	<i>Winooski</i>	<i>Winooski</i>
Alpheus Breed Frizzell	Ag	<i>Canaan</i>	15 Exp. Station
Adams Brock Fulton	Ch	<i>Bradford</i>	1 M. C. H.
Glenn Carlos Gould	Cl	<i>Morrisville</i>	349 College
William Dougald Grant	Ag	<i>Barre</i>	14 Exp. Station
Mary Wilson Harrison	Cl	<i>Brandon</i>	63 S. Willard
Frederick William Hubbard	Cl	<i>Rutland</i>	46 S. C. H.
Rufus Stuart Hunt	EE	<i>E. Peacham</i>	45 M. C. H.
James Chesterfield Jones	Cl	<i>Burlington</i>	433 S. Union
Robert Douglas Kellogg	Cl	<i>Plattsburgh, N. Y.</i>	41 M. C. H.
Joshua Bartlett Kirkpatrick	Cl	<i>E. Deering, Me.</i>	2 Colchester
James McEwen Larabee	EE	<i>Craftsbury</i>	9 N. C.
Napoleon Arthur Laury	Ch	<i>Burlington</i>	272 North
Harry Chester Libby	CE	<i>Lowell, Mass.</i>	5 N. C.
Levi Bates Lincoln	CE	<i>Deering, Me.</i>	5 N. C.
Arthur Edward Lovett	LS	<i>Chatham Centre, N. Y.</i>	M. C.
James Leslie Mackay	EE	<i>Peacham</i>	45 M. C. H.

STUDENTS

107

Edwin Ellsworth Miller	ME	Newport	3 M. C. H.
Alice Josephine Morris	Cl	Webster, Mass.	411 Main
Charles Tidd Murray	EE	Charlestown, N. H.	349 College
Martha Ella Needham	Cl	Leicester Junction	215 Pearl
Albert Richard Nourse	Sp	Springfield	12 Exp. Station
Harry Bigelow Oatley	ME	Rochester, N. Y.	1 N. C. H.
Carroll Dunham Partridge	Ch	Bennington	Y. M. C. A.
Frederick Russell Pember	Ag	Putney	16 Exp. Station
James Burnham Porter	Cl	Rutland	15 Hayward Bl'k
Thomas Reed Powell	Cl	Burlington	70 Williams
Louis Philip St. Cyr	EE	Woodstock	43 M. C. H.
Wilbur Cyrus Sawyer	CE	Essex Junction	Essex Junction
Perley Spaulding	Ag	Bethel	18 Exp. Station
Harry Brydon Spencer	EE	Proctor	10 N. C.
Charles Marcellus Sturgess	Cl	Sheldon	M. C.
Jesse Weston Tobey	Cl	Burlington	123 N. Winooski
Charles Amasa Tracy	Cl	Burlington	149 N. Union
Walter Wallace Tyler	LS	Burlington	262 Pearl
James Obadiah Walker	Sp	Burlington	91 N. Union
Ellery Elmer Webster	Cl	Barton	11 N. C.
Orville Gould Wheeler	Cl	Burlington	335 S. Union
Walter Byron Williams	Cl	Brockton, Mass.	41 N. C. H.
Oscar Bradford Wood	Ag	Georgia	14 Exp. Station
Charles Robert Young	EE	N. Craftsbury	9 N. C.

SOPHOMORE CLASS

Wellington Esty Aiken	LS	Benson	415 Pearl
Arthur Scott Bailey	LS	St. Albans	25 N. C. H.
Herman David Bone	Ag	Wells River	12 Exp. Station
Howard Slocum Booth	Ch	Swanton	25 N. Union
Charles Irving Boyden	Ag	Randolph Centre	18 Exp. Station
Graton S. Brand	Ch	Essex	112 Loomis
Theron Cumins Brooks	CE	Randolph	21 N. C. H.

Elva Mabel Brownell	Cl	<i>Burlington</i>	196 S. Willard
Albert Wayne Butler	Cl	<i>E. Jamaica</i>	2 N. C. H.
Ernest Hiram Buttles	Cl	<i>Brandon</i>	5 N. C.
Silas Ralph Carpenter	Sp	<i>Richford</i>	4 M. C. H.
Fred Wade Carrier	Cl	<i>Bennington</i>	449 Pearl
May Conro	LS	<i>South Hero</i>	49 Mansfield
Patrick Michael James Corry	Ag	<i>Montpelier</i>	449 Pearl
Marshall Baxter Cummings	Ag	<i>N. Thetford</i>	11 Exp. Station
Samuel Sibley Dennis, jr.	LS	<i>Hardwick, Mass.</i>	349 College
Vernon Waterman Dodge	Sp	<i>Morrisville</i>	349 College
Charles Scott Dow	Ch	<i>Burlington</i>	8 S. Willard
Carroll Howard Drown	Cl	<i>Johnson</i>	38 Russell
Winfield Matthewson Farr	Sp	<i>Bristol</i>	47 Buell
Helen May Ferguson	LS	<i>Burlington</i>	77 N. Union
Bernard Peter Finnegan	CE	<i>Hyde Park</i>	449 Pearl
Ivah Winifred Gale	LS	<i>Newport</i>	19 Buell
Kathryn Knee Gebhardt	LS	<i>Shelburne</i>	411 Main
George William Gilson	ME	<i>Bethel</i>	20 Exp. Station
Clifford Burnham Griswold	ME	<i>Felchville</i>	2 Colchester
Aaron Hinman Grout	LS	<i>Derby</i>	32 N. C. H.
Inez Adelaide Grout	LS	<i>Derby Centre</i>	229 Colchester
Mary Adelle Grout	LS	<i>Derby Centre</i>	229 Colchrster
Charlotte Frances Hale	LS	<i>Burlington</i>	150 N. Union
George Henderson	Cl	<i>Burlington</i>	30 Chase
James Campbell Hickey	LS	<i>Rutland</i>	16 S. C.
Charles Allen Kern	Ch	<i>Burlington</i>	72 S. Winooski
Allan Wilson Kingsland	Cl	<i>Burlington</i>	267 S. Union
Henry Page Lapelle	ME	<i>Swanton</i>	44 M. C. H.
Edwin Winship Lawrence	Cl	<i>Rutland</i>	45 S. C. H.
Frances Hamlin Lee	Ch	<i>Burlington</i>	31 Lafayette Pl.
George Samuel Lee	LS	<i>Irassburg</i>	13 S. C.
Arlington Pearl Little	EE	<i>Burlington</i>	342 Pearl
Fred Clarence Locke	LS	<i>Springfield</i>	12 S. C.
Ernest Nelson McColl	CE	<i>S. Ryegate</i>	45 N. C. H.

Harris David McDonald	Cl	<i>Swanton</i>	34 Hickok Pl.
Madge Elizabeth McElroy	LS	<i>Bakersfield</i>	215 Pearl
Alfred John McKellow	Cl	<i>Keeseville, N. Y.</i>	14 N. C.
Josephine Adelaide Marshall	Cl	<i>St. Johnsbury</i>	47 N. Prospect
Carroll Putnam Marvin	ME	<i>Montpelier</i>	349 College
Roy Sidney Morse	LS	<i>Montpelier</i>	349 College
Florence Eliza Nelson	LS	<i>Burlington</i>	118 Pearl
Warren Adolphus Noyes	Cl	<i>Hyde Park</i>	5 M. C. H.
Fred Jonathan Park	EE	<i>Lyndon</i>	13 N. C.
Earl Elkins Parker	ME	<i>Barre</i>	349 College
Katherine Louise Parker	LS	<i>Bradford</i>	411 Main
Martin Albert Pease	CE	<i>Springfield, Mass.</i>	2 S. C. H.
Dean Homer Perry	Cl	<i>Barre</i>	349 College
Edward Hanson Reed	Ch	<i>Burlington</i>	41 Loomis
Henry Stanley Renaud	Ch	<i>Burlington</i>	135 Elmwood
Harry Henry Reynolds	Ch	<i>Cambridge</i>	35 N. C. H.
James Reynolds	EE	<i>Claremont, N. H.</i>	2 S. C.
William Edson Ross	Cl	<i>Franklin Falls, N. H.</i>	2 Colchester
Henry Stanton Rowe	Cl	<i>Granville, N. Y.</i>	56 S. Winooski
James Rhitenhouse Scott, jr.	Sp	<i>New York, N. Y.</i>	26 N. C. H.
Dan German Seager	Cl	<i>Brandon</i>	56 Colchester
John Elliot Seaver	ME	<i>Quechee</i>	45 N. C. H.
Anna Brown Shepard	LS	<i>Ticonderoga, N. Y.</i>	47 N. Prospect
Howard Russell Smalley	Ch	<i>Burlington</i>	400 S. Union
Samuel Waldo Smith	ME	<i>Barre, Mass.</i>	45 N. C. H.
Allen Robert Sturtevant	LS	<i>New Haven</i>	449 Pearl
Carl Noyes Thomas	Sp	<i>Lowell, Mass.</i>	9 S. C.
James Tyndall	Cl	<i>Morrisville</i>	6 S. C.
Albert Frank Ufford	Cl	<i>Fairfax</i>	6 N. C.
Frederick Paul Wadleigh	Cl	<i>E. Berkshire</i>	42 N. C. H.
Susie Pearl Whiteman	LS	<i>Burlington</i>	19 Buell
Jessie Patience Woodworth	Cl	<i>Westfield</i>	215 Pearl

FRESHMAN CLASS

Harold James Adams	LS	<i>West Haven</i>	6 N. C.
John Edward Adams	Sp	<i>Swanton</i>	26 S. C. H.
Roy Brigham Atherton	E	<i>Essex Junction</i>	<i>Essex Junction</i>
George Percival Auld	Cl	<i>Burlington</i>	424 S. Union
Alice Lillian Bean	Cl	<i>Newport</i>	411 Main
Luther David Beckley	E	<i>Barre</i>	5 N. C. H.
George David Brodie	Cl	<i>Burlington</i>	378 S. Union
George Orin Bryant	Ch	<i>Williston</i>	20 S. C.
Mary Lucretia Butler	Cl	<i>Sunderland, Mass.</i>	411 Main
Samuel Theodore Campbell	Ch	<i>Burlington</i>	86 S. Champlain
Geneva Claire Carpenter	LS	<i>Brookfield</i>	177 S. Prospect
Dana Lynn Chadwick	Ag	<i>Bethel</i>	17 Exp. Station
John Wesley Church	E	<i>Bellows Falls</i>	2 Colchester
Ernest Dwight Clapp	E	<i>Georgia</i>	177 S. Prospect
Helen Gordon Clark	LS	<i>Vergennes</i>	2 Colchester
Lucius Lynn Cutler	E	<i>Barre</i>	1 N. C.
Ernest Taylor Dean	Ch	<i>Bellows Falls</i>	8 S. C.
James Edward Donahue	LS	<i>Essex Junction</i>	<i>Essex Junction</i>
Florence Louise Douglas	Cl	<i>West Haven</i>	85 S. Willard
Richard Prescott Downs	Ch	<i>Ticonderoga, N. Y.</i>	2 Colchester
Bertha Isadore Field	LS	<i>Springfield</i>	411 Main
West Augustus Freeman	E	<i>South Royalton</i>	6 S. C.
Harry Edward Gage	Cl	<i>Burlington</i>	40 Converse Ct.
Grace Anna Goodhue	LS	<i>Burlington</i>	123 Maple
Charles Edwin Goodwin	LS	<i>Kennebunkport, Me.</i>	2 N. C.
Willard Levi Goss	Ag	<i>St. Johnsbury</i>	Exp. Farm
Leon Everett Grout	Ag	<i>Newfane</i>	17 Exp. Station
John Nelson Harvey	LS	<i>Montpelier</i>	31 M. C. H.
Ronard Rudolph Hayward	Ch	<i>Burlington</i>	371 Pearl
Arthur S. Hoag	LS	<i>Ellenburgh, N. Y.</i>	35 S. C. H.
Helen Lida Hodge	LS	<i>Burlington</i>	85 N. Prospect
Fayette Elmore Hubbard	Ag	<i>Burlington</i>	13 Grant

Harry Pratt Hudson	E	<i>Bennington</i>	36 S. C. H.
Edwin Crawford Hunt	Cl	<i>Oakham, Mass.</i>	N. C. H.
John Martin Hunt	E	<i>East Peacham</i>	45 M. C. H.
Harold Frederick Huntley	Ch	<i>Westford</i>	Winooski
Abbott Trask Hutchinson	Cl	<i>Burlington</i>	178 S. Prospect
Elizabeth Converse Johnson	Cl	<i>Burlington</i>	74 Adams
Geneva Aurora Jones	LS	<i>Northfield</i>	177 S. Prospect
Harry Bliss Joyner	LS	<i>Burlington</i>	29 S. Willard
Arthur Leon Kelly	E	<i>Lowell, Mass.</i>	128 Colchester
Charles Walter Kellogg	E	<i>Morrisville</i>	1 M. C. H.
Nelson Kellogg	Cl	<i>Plattsburgh, N. Y.</i>	41 M. C. H.
Walter Clement Kenney	E	<i>Sharon</i>	6 S. C.
George Eugene Lamb	E	<i>Stockbridge</i>	1 N. C.
Forrest Metcalf Larcher	Ch	<i>Webster, Mass.</i>	46 S. C. H.
Anna Mary Lilley	Cl	<i>Hyde Park</i>	49 Buell
Howard Harrington Marsh	E	<i>Winchendon, Mass.</i>	4 M. C. H.
Howard Lucius Martin	Cl	<i>Washington, D. C.</i>	21 M. C. H.
Louis Fuller Martin	E	<i>Washington, D. C.</i>	21 M. C. H.
Beatrice Sophia May	Cl	<i>St. Johnsbury</i>	411 Main
Lillian Etta Mears	LS	<i>Gloucester, Mass.</i>	132 N. Winooski
Lysander Herbert Merrihew	Ch	<i>S. Burlington</i>	Spear
Maud Leonora Merrihew	LS	<i>S. Burlington</i>	Spear
Floyd Arkley Miller	E	<i>Newport</i>	10 Brown's Ct.
George Glenn Morse	E	<i>Morrisville</i>	349 College
Levi Miller Munson	Cl	<i>Morrisville</i>	349 College
Cassius Reuben Peck	Cl	<i>Burlington</i>	Exp. Farm
Julia Emily Pember	LS	<i>Wells</i>	2 Colchester
Louis Edward Pope	Ch	<i>Burlington</i>	38 Elmwood
William Eli Putnam	E	<i>Springfield</i>	144 S. Willard
Don Martin Rice	E	<i>Westford</i>	18 S. C.
Irving Lyman Rich	Sp	<i>Richville</i>	1 N. C.
Emma Richardson	LS	<i>Richmond</i>	95 Main
Harley Curtis Sanborn	Ag	<i>N. Thetford</i>	11 Exp. Station

Robert Maynard Sears	E	Plainfield, Mass.	128 Colchester
Haroutioun Selian	E	Catsery, Armenia	22 Johnson
Clarence Hiram Senter	Ch	Montpelier	2 S. C. H.
Evelyn Kendall Severance	E	Brattleboro	2 Colchester
Jay G. Shaw	Ag	Jericho	80 Colchester
Donna Marie Slater	Sp	Burlington	219 N. Winooski
Albert Orange Smith	E	Barre	5 N. C. H.
Eaton Marner Snow	Ag	N. Randolph	Exp. Farm
Leonard Pearsons Sprague	Ag	Randolph Centre	13 Exp. Station
Arthur Duane Stearns	Cl	Burlington	35 Loomis
Ethel Marilla Stevens	LS	Williston	60 Buell
Reuben Richardson Strait	Ag	St. Albans	13 Exp. Station
Frank Goodspeed Taylor	E	East Poultney	5 S. C.
Richard Hills Taylor	Cl	Proctor	49 Mansfield
Arthur Hastings Tenney	E	S. Royalton	6 S. C.
Warren Horace Tenney	E	S. Royalton	6 S. C.
Mihran Torossian	E	Catsery, Armenia	22 Johnson
Roy Willard Tyler	LS	Burlington	262 Pearl
Charles Hugh Waddell	LS	Johnsburg, N. Y.	16 N. C.
Rupert Bowles Warburton	E	Springfield, Mass.	22 S. C. H.
Arthur Day Welch	E	Sharon	2 N. C.
Arthur Clayton Wells	Ag	Bakersfield	Exp. Farm
John Martin Wheeler	Cl	Burlington	335 S. Union
Lavater Edson White	E	Brooklyn, N. Y.	31 S. C. H.
Carey Persia Williams	LS	Burlington	193 S. Union
Richard Dudley Wilson	E	Bethel	16 Loomis
Adin Cyprian Woodbury	E	Perkinsville	16 S. C.
Maxwell Eugene Woodward	E	Ludlow	133 King

SPECIAL STUDENTS

Anna Margaret Bogue	LS	Pittsford	411 Main
Helen Katharine Brainerd	LS	St. Albans	483 Main
Edith Agnes Clarke	LS	New York, N. Y.	St. M. Acad.

George Thomas Deavitt		<i>Montpelier</i>	64 Buell
Arthur Warren Floyd	CE	<i>Lowell, Mass.</i>	5 S. C.
George Bowditch Hunter	CE	<i>Fort Ethan Allen</i>	Fort Ethan Allen
George Frederick Marsh	Ch	<i>Chester</i>	187 St. Paul
Charles Augustus Moser	Ch	<i>Burlington</i>	281 Maple
Anna Clarkson Moser	Ch	<i>Burlington</i>	281 Maple
George Edward Partridge	Ch	<i>Bennington</i>	Y. M. C. A.
Roy Hamilton Peck	Ch	<i>Burlington</i>	406 S. Union
Mary True Randall		<i>Pittsford</i>	411 Main
Elizabeth Agnes Richmond	LS	<i>Newport</i>	46 N. Winooski
Fanny Laura Shaw		<i>Burlington</i>	253 S. Union
Walter Stockton		<i>Burlington</i>	47 Buell

MEDICAL STUDENTS, 1898

Edson Moses Abbott.....	Laconia, N. H.
David Bartine Ackley.....	Harrisonville, N. J.
John Adams.....	Dorchester, Mass.
Lemuel Payson Adams, A. B.....	Swanton, Vt.
Leslie John Agon.....	Canton, N. Y.
Albert Kurwin Aldinger.....	Bloomsburg, Pa.
Leon Bernard Allen.....	East Roxbury, Vt.
Ernest Jason Alley.....	Lowell, Mass.
George Riley Anderson	Rutland, Vt.
Royal Wride Andrews.....	Buffalo, N. Y.
Joseph Antoine Archambault.....	Enosburg Falls, Vt.
Francis Joseph Arnold.....	Burlington, Vt.
Francis Melancthon Arthur.....	Wright, N. Y.
Harold Levi Baldwin.....	Syracuse, N. Y.

Harry Lee Barnes.....	Adams, Mass.
Charles Atwood Bates, Ph. B.....	Randolph, Vt.
Chester Charles Beckley.....	Plainfield, N. H.
Clarence Henry Beecher.....	West Pawlet, Vt.
Henry House Beers.....	Bridgeport, Conn.
John Mason Blake.....	Highgate, Vt.
Charles Austin Bonney, Jr.....	New Bedford, Mass.
Richard Botsford.....	Fort Dodge, Iowa.
Thomas Edward Boylan.....	Taunton, Mass.
Lester Rupert Brown.....	Wentworth, N. H.
Charles Henry Brown.....	Springfield, Mass.
John Harold Buffum, Ph. B.....	East Dorset, Vt.
Newell Cutler Bullard.....	North Attleboro, Mass.
Frank Albert Burleigh.....	Lakeport, N. H.
Edward Daniel Burt.....	Ashland, N. H.
Thomas Callighan.....	Pawtucket, R. I.
Claude Melnotte Campbell.....	Rochester, Vt.
John Lincoln Campbell.....	Rochester, Vt.
Thomas Henry Canning.....	Burlington, Vt.
Ned Carr.....	Worcester, Vt.
Noe Napoleon Charbonneau.....	Hudson, Mass.
Allen Bell Clement.....	Burlington, Vt.
Dexter Jameson Clough.....	Portland, Me.
Irving Smith Coburn.....	Belvidere, Vt.
James Hervey Conklin.....	Hartford, Conn.
Ralph Dent Converse.....	New York, N. Y.
Daniel Ferry Costello.....	New York, N. Y.
James William Courtney.....	Burlington, Vt.
Martin James Dalton.....	Marlboro, Mass.
Charles Henry Dean.....	North Ferrisburgh, Vt.
William Edward Denning.....	Burlington, Vt.
Arthur Clarence Devere.....	Auburn, R. I.
Fred Hewitt Devere.....	Auburn, R. I.

Thomas Harry Dixon.....	Sackville, N. B.
John Hazen Dodds.....	North Hero, Vt.
James Frederick Dorr	Oakdale, Mass.
Joseph Abner Dow.....	West Baldwin, Me.
Carl B. Dunn, A. B.....	Abercorn, P. Q.
Edward Wilson Dupee.....	Bridgeport, Conn.
Henry Whitney Eliot.....	North Haven, Conn.
John Francis English.....	Stafford Springs, Conn.
Frank Emerson Farmer.....	East Burke, Vt.
Harry Roswell Farris.....	Oxford, Me.
Robert Henry Ferguson, A. M.....	Boston, Mass.
George Hardy Finch.....	Burlington, Vt.
George Varnum Fisk	Epsom, N. H.
Charles Joseph Fitzgerald.....	Middletown, Conn.
Edgar Thompson Flint.....	Foxcroft, Me.
Fred Abram Fowler.....	Hill, N. H.
Claud Adelbert Freleigh.....	Nashua, N. H.
Frank Chester Frisbie.....	Amsterdam, N. Y.
Charles Wesley Gardner.....	Fitchville, Conn.
Horace Dority Gibbons.....	Scranton, Pa.
John Gibson.....	Burlington, Vt.
Edward Francis Gleason	Hyannis, Mass.
Dana Bailey Goddard.....	Burlington, Vt.
Albert Joseph Greenwood.....	Springfield, Vt.
John Morgan Griffiths.....	Cardiff, Wales
Frederick Jacob Haendel.....	New York, N. Y.
William Henry Thomas Hamill	Bristol, R. I.
Herbert Bill Hanson, Ph. B.....	Barre, Vt.
Waldo Russell Harkness.....	Hinesburgh, Vt.
Francis Joseph Harper	Norwich, Conn.
David Eugene Harriman, Jr.....	St. Johnsbury, Vt.
Alfred Taylor Hawes, A. B.....	Burlington, Vt.
Frank Winfield Hayden.....	Burlington, Me.

Cyrus Hamilton Hazen.....	West Hartford, Vt.
Robert Hazen, A. B.....	Burlington, Vt.
Edward John Henkel.....	Brattleboro, Vt.
Elias Peter Hicks.....	Burlington, Vt.
Aymer Seth Columbus Hill, A. B.....	Johnson, Vt.
Morgan Brewster Hodskins.....	Wadham's Mills, N. Y.
Thomas Joseph Hogan.....	Pittsford, Vt.
Harry Walter Holden.....	East Randolph, Vt.
Perley Eugene Holmes	Brattleboro, Vt.
Benjamin H. Hosley.....	Canton, N. Y.
Clifford Parker Holt.....	Barre, Vt.
Harry Varsil Hubbard.....	Rochester, Vt.
George Fay Hubbell.....	St. Albans, Vt.
D. S. Hunt.....	Preble, N. Y.
Chester James Hurlburt.....	Georgia, Vt.
Fred Kinney Jackson, A. B.....	Barre, Vt.
Joseph Addison Jackson.....	Barre, Vt.
Charles Kimball Johnson	Bristol, Vt.
Peer Prescott Johnson.....	Burlington, Vt.
Robert William Johnson	Burlington, Vt.
Stillwell Johnston	Vanceboro, Me.
Francis Fletcher Joyner.....	Burlington, Vt.
James Fatheringham Kendrick	South Albany, Vt.
Enoch Wright Kent, M. D.....	Panton, Vt.
James Thomas Kerrigan	Hudson, Mass.
Henry Barstow Ketcham.....	Burlington, Vt.
William Richard Keyes.....	Glens Falls, N. Y.
Charles Henry Kingsbury.....	Burlington, Vt.
William Ripley Kinson	Burlington, Vt.
Henry Abner Ladd.....	North Hero, Vt.
Winfred Howard Lane	Ludlow, Vt.
Chester Sylvester Leach.....	Hyde Park, Vt.
Harry Leith.....	Haverhill, N. H.

Frank Charles Ligouri.....	New London, Conn.
Clarence Bertram Livingston.....	Lowell, Mass.
Ernest George Livingston.....	Berkshire, Vt.
Patrick Carter Lodge	Naugatuck, Conn.
William Dee Looney.....	Salem, Mass.
James Love.....	Troy, N. Y.
James Erwin Lovell.....	Perry City, N. Y.
Albert Fay Lowell	Burlington, Vt.
Charles Woolsey Lyon.....	Hartford, Conn.
Lewis F. McCarthy	Morrisville, Vt.
Donald William Macdonald	Burlington, Vt.
Charles Herbert Mace.....	Sidney Center, N. Y.
James Nicholas McKone, A. B.....	Hartford, Conn.
Daniel William McNamara.....	Westerly, R. I.
William Joseph McNiff	Worcester, Mass.
George Ladd Macomber.....	Montpelier, Vt.
Dennis Edward McSweeney.....	North Creek, N. Y.
Benjamin Louis Marcou.....	Berlin, N. H.
Erwin Walter Markham	East Longmeadow, Mass.
David Marvin.....	Alburgh, Vt.
William Francis Meagher, Ph. G.....	Hartford, Conn.
Joseph Euclid Mercier	Farnumsville, Mass.
Quincy Heald Merrill.....	Milford, N. H.
Herbert Nathan Montefiore	St. Albans, Vt.
Harry Herbert Moore.....	Wales, Mass.
William Robert Morrow, M. D.....	Burlington, Vt.
Arthur Oscar Morton.....	St. Albans, Vt.
Edward John Mountain	Danville, P. Q.
Leo Alexander Newcomb.....	Waterbury Centre, Vt.
Albert Warren Newell	Stoneham, Mass.
Harry Royal Nye.....	East Coventry, Vt.
James Francis O'Brien.....	Bellows Falls, Vt.
John Joseph O'Connor.....	Brattleboro, Vt.

Terrence Bernard O'Neil.....	West Chazy, N. Y.
Henri Pache.....	Burlington, Vt.
Charles Samuel Pangborn.....	East Boston, Mass.
Charles Fulton Parker.....	West Baldwin, Me.
Clifford Atherton Pease.....	West Bolton, Vt.
Harry McDonald Peggs	Swanton, Vt.
Ralph Gibson Perry.....	Barnet, Vt.
Sidney Prentice Phelps.....	Norwood, N. Y.
Herman Phillipson, D. V. S.....	Brandon, Vt.
Wallace Marcell Pierce.....	Cambridge, Vt.
Arthur Elisha Platt.....	Burlington, Vt.
Elmer Walter Powers.....	Portland, N. Y.
Willard DeForest Preston.....	Attica, N. Y.
Thomas Ebenezer Reeks.....	Newburgh, N. Y.
Rees Bynon Rees.....	Boston, Mass.
Clarence Edwin Rice.....	Portland, Me.
Frank Mathews Rogers.....	Panton, Vt.
George Millar Sabin, B. S.....	Malone, N. Y.
George Henry Sanborn.....	Concord, N. H.
Howard Elmer Sargent.....	Morrisville, Vt.
William Avery Schermerhorn.....	Walton, N. Y.
Henry Hamblin Seeley, A. B.....	Middlebury, Vt.
Harry Rabe Sharpe.....	Bristol, Conn.
Carlos Adams Shaw.....	South Northfield, Vt.
Dennis Miner Shea.....	Nashua, N. H.
Edward Sheehan.....	North Creek, N. Y.
David Watt Sheldon.....	Dresden, Me.
Charles Rufus Skinner, B. S.....	Hoosick Falls, N. Y.
Lester Everett Smith.....	Saratoga Springs, N. Y.
Charles Jacob Spaid.....	Philmont, N. Y.
Charles Benjamin Sprague.....	Wadham's Mills, N. Y.
Frederick John Stephenson.....	Burlington, Vt.
Peter Breadalbane Stewart.....	West Superior, Wis.

Ned Carroll Stiles.....	St. Johnsbury, Vt.
Mortimer Joseph Stoddard.....	Brattleboro, Vt.
Bingham Hiram Stone, A. B.....	Jericho Centre, Vt.
Thomas Jefferson Strong.....	Burlington, Vt.
Charles Porter Sylvester.....	Hull, Mass.
Edgar Charles Syrett.....	Springfield, Mass.
Eugene Dole Tapley.....	West Brooksville, Me.
Thomas Sumner Tapley.....	Brooksville, Me.
Albert Johnson Thomas.....	Middle Granville, N. Y.
Nathan Lincoln Thompson, Ph. G.....	St. Johnsbury, Vt.
William Burton Thorning.....	Keene, N. H.
Amos Moses Tichurst.....	West Glover, Vt.
William Taft Tilley.....	South Burlington, Vt.
William Joseph Trainor.....	Boston, Mass.
John Trotter, jr.....	Troy, N. Y.
Frank James Tuttle.....	Naugatuck, Conn.
Waldo Jesse Upton.....	St. Albans, Vt.
W. H. Van Strander.....	Hartford, Conn.
Harris Hard Walker.....	Burlington, Vt.
Watson Lovel Wasson.....	Port Henry, N. Y.
Vance William Waterman.....	Burlington, Vt.
Rollin Edward Webb.....	Lancaster, N. H.
Arthur Dudley West, A. B.....	Newport, Vt.
Frank Davis Weymouth.....	Howland, Me.
Walter James White.....	Shelburne, Vt.
George Duff Whiteside.....	Vergennes, Vt.
Isaac Henry Wight.....	Milan, N. H.
Frederick Buell Willard, A. B.....	Burlington, Vt.
Maurice John Wiltse, Ph. G.....	Richfield Springs, N. Y.
Ernest Oliver Winship.....	Manchester, Vt.
Harry Monroe Wyman.....	Hubbardston, Mass.

DAIRY STUDENTS, 1898

H. L. Allbee, <i>Newfane</i>	A. B. Hough, B. S., <i>Lebanon, N. H.</i>
C. B. Andrews, <i>Richmond</i>	C. I. Ingalls, <i>N. Enosburgh</i>
F. C. Bingham, <i>W. Cornwall</i>	A. E. Johnson, <i>W. Newbury</i>
S. L. Bond, <i>Wilmington</i>	F. J. Merrifield, <i>Newfane</i>
E. R. Bostwick, <i>S. Londonderry</i>	Edwd. Ochampaugh, <i>Orwell</i>
L. E. Brown, <i>Springfield</i>	O. H. Perrin, <i>Rupert</i>
W. H. Bushnell, <i>Weybridge</i>	R. A. Perry, <i>Westford</i>
J. A. Chamberlain, <i>Grand Isle</i>	A. R. Potter, <i>New Haven</i>
T. S. Chase, <i>Passumpsic</i>	Geo. Roberts, <i>Shoreham</i>
W. F. Covey, <i>Shoreham</i>	C. C. Robinson, <i>Waterbury Ctr.</i>
Robt. Easton, <i>Cornwall</i>	H. L. Russell, <i>Cuttingsville</i>
J. N. Ellis, <i>Huntington Ctr.</i>	William Ryan, <i>Craftsbury</i>
G. S. Everest, <i>New Haven</i>	H. J. Sargent, <i>Corinth</i>
G. C. Everest, <i>Vergennes</i>	L. B. Selian, <i>Shelburne</i>
W. G. Fassett, <i>Enosburgh</i>	J. G. Shaw, <i>Jericho</i>
H. K. Fuller, <i>Lowell, Mass.</i>	D. H. Stanhope, <i>Enosburgh Falls</i>
L. F. Giddings, <i>Hubbardton</i>	F. M. Stearns, <i>N. Ferrisburgh</i>
J. L. Gleason, <i>Waitsfield</i>	C. P. Stevens, <i>Richford</i>
A. R. Grant, <i>St. Albans</i>	H. F. Tilley, <i>Burlington</i>
D. K. Hall, <i>Rutland</i>	E. F. Thayer, <i>Warren</i>
John Halpin, <i>Middlebury</i>	C. A. Wheeler, <i>W. Charleston</i>
G. H. Hawley, <i>W. Arlington</i>	W. B. Wheelock, <i>Colchester</i>
P. S. Hodgkins, <i>Johnson</i>	G. H. Whitman, <i>Burlington</i>
Roy Holman, <i>Randolph</i>	L. B. Whitman, <i>Weybridge</i>
John Holmes, <i>Charlotte</i>	A. E. Willard, <i>Burlington</i>
John Holmes, <i>Shoreham</i>	S. E. Wright, <i>Bristol</i>

DEGREES CONFERRED IN 1897-98

HONORARY

DOCTOR OF LAWS

JOSIAH GROUT, of Derby, Vt.

MASTER OF ARTS

LEWIS JUREY HUFF, of Baltimore, Md.

CHARLES JUSTIN BAILEY, Lieut. 1st U. S. Artillery

IN COURSE

DOCTOR OF MEDICINE

Edson Moses Abbott	Arthur Clarence Devere
John Adams	Fred Hewitt Devere
Leslie John Agon	John Hazen Dodds
George Riley Anderson	Henry Whitney Eliot
Harry Lee Barnes	John Francis English
Chester Charles Beckley	Robert Henry Ferguson, A. M.
John Mason Blake	George Hardy Finch
Charles Austin Bonney, jr.	Charles Joseph Fitzgerald
Thomas Edward Boylan	Frank Chester Frisbie
Richard Botsford	John Gibson
John Harold Buffum, Ph. B.	Albert Joseph Greenwood
Newell Cutler Bullard	Frederick Jacob Haendel
Claude Melnotte Campbell	Waldo Russell Harkness
Noe Napoleon Charbonneau	David Eugene Harriman
Allen Bell Clement	Robert Hazen, A. B.
James William Courtney	Elias Peter Hicks
Martin James Dalton	Aymer Seth Columbus Hill, A. B.
Charles Henry Dean	Harry Varsil Hubbard

George Fay Hubbell	Charles Fulton Parker
Robert William Johnson	Sidney Prentice Phelps
Stillwell Johnston	Wallace Marcell Pierce
William Richard Keyes	Howard Elmer Sargent
James Erwin Lovell	Henry Hamblin Seeley, A. B.
Ernest George Livingston	David Watt Sheldon
James Love	Charles Jacob Spaid
Donald William McDonald	Charles Benjamin Sprague
James Nicholas McKone, A. B.	Peter Breadalbane Stewart
William Joseph McNiff	Mortimer Joseph Stoddard
Dennis Edward McSweeney	Edgar Charles Syrett
Quincy Heald Merrill	John Trotter, jr.
Herbert Nathan Montefiore	Frank James Tuttle
Edward John Mountain	Waldo Jesse Upton
Albert Warren Newhall	Arthur Dudley West, A. B.
John Joseph O'Connor	Frank Davis Weymouth
Maurice John Wiltse, Ph. G.	

MASTER OF ARTS

Frederick Thompson Sharp, A. B. 1895

MASTER OF SCIENCE

William Allen Orton, B. S. 1897

CIVIL ENGINEER

Frederick John Mills

BACHELOR OF ARTS

*William Henry Burt	Clifton Durant Howe
James Ora Coddington, <i>cum laude</i>	*Peer Prescott Johnson, <i>cum laude</i>
Carrie Esther Deavitt	Fred Halsey Larabee
Samuel Warren Hamilton, <i>cum laude</i>	William Barry Leavens
Edward Elisha Herrick, B. S.	Abbie Katharine Leonard, <i>cum laude</i>
Carlton Dexter Howe	Albert Fay Lowell

Ida Maud Miles, <i>cum laude</i>	Russell Wales Taft
Mabel Augusta Miles	John Cutler Torrey, <i>cum laude</i>
Henry Farnham Perkins	Julius Spear Turrill
Perley Orman Ray	Charles Strain Van Patten
William Julius Russell	*Harris Hard Walker
Robert Childs Wilson	

BACHELOR OF PHILOSOPHY

William Silas Bean	Margaret Alice Millham
Anna May Clark	Walter Towne Mott
William James Forbes	Clarence Elbert Noyes
Helen Grace Hendee	Roy Leonard Patrick
Elwyn Nehemiah Lovewell, <i>cum laude</i>	Marian B. Rustedt, <i>cum laude</i>
Mabel Sophia Way	

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

*Merton Covey Robbins, *cum laude* *Donald Clark Wedgeworth, A. B.

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Floy Edson Booth	Edward R. Mack
Charles Stewart Raymond	

BACHELOR OF SCIENCE IN CHEMISTRY

*Albert Loomis Clark	*William Thomas Whelan
Louis Collins Dodd	Charles Douglas Waters

BACHELOR OF SCIENCE IN AGRICULTURE

Lawrence Wesley Barton	William Comstock Perry
Vinton Albert Clark, <i>cum laude</i>	Herbert Leon Priest
Lewis Wallbridge English	Duncan Stuart, <i>cum laude</i>
George Campbell Hubbard	*Dennie Hammond Udall
Warner Jackson Morse	Arthur Montague Vaughan

*Absent ; in service of U. S.

HONOR LIST, 1897-98*Class of 1898***GENERAL HIGH STANDING**

Marian Brigham Rustedt	Samuel Warren Hamilton
Vinton Albert Clark	Duncan Stuart
Ida Maud Miles	Peer Prescott Johnson
James Ora Coddington	Elwyn Nehemiah Lovewell
John Cutler Torrey	Merton Covey Robbins
Abbie Katharine Leonard	

SPECIAL HONORS

Greek :—Samuel Warren Hamilton
Latin :—James Ora Coddington
Mathematics :—Elwyn Nehemiah Lovewell
Animal Biology :—John Cutler Torrey
Botany :—Anna May Clark
 Carlton Dexter Howe
 Clifton Durant Howe
Horticulture :—Vinton Albert Clark
 Lewis Walbridge English

HONORABLE MENTION FOR THESIS OF CONSPICUOUS MERIT

Warner Jackson Morse

SPEAKERS AT COMMENCEMENT

William Silas Bean	Henry Farnham Perkins
Anna May Clark	Perley Orman Ray
Clifton Durant Howe	William Julius Russell
Ida Maud Miles	Marian Brigham Rustedt
John Cutler Torrey	

PRIZES

KINGSLEY PRIZES IN DECLAMATION

First: James Franklin Waterman
Second: Thomas Reed Powell
Third: Aaron Hinman Grout

JULIA H. SPEAR PRIZES IN READING

First: Jessie Patience Woodworth
Second: Mary Adelle Grout
Third: Anna Brown Shepard

JUNIOR PRIZE FOR PROGRESS

Max Walter Andrews

ENTRANCE EXAMINATION PRIZES

George Percival Auld, *Latin*
 Elizabeth Converse Johnson, *Greek*
 James Edward Donahue, *Mathematics*
 Fitted at the Burlington High School

HONORABLE MENTION

Howard Lucius Martin, *Latin*
 Fitted at Washington (D. C.) High School
 Willard Levi Goss, *Mathematics*
 Fitted at the St. Johnsbury Academy
 Evelyn Kendall Severance, *Mathematics*
 Fitted at the North Street School, Brattleboro
 Cassius Reuben Peck, *Mathematics*
 Fitted at the Burlington High School

SPEAKERS ON FOUNDER'S DAY, 1898

Hon. Henry Wayland Hill, A. M., 1876
 Charles Ira Button, 1899
 William Julius Russell, 1898

The three students reported in 1898 to the U. S. War Department and to the Adjutant General of Vermont, as having shown most aptitude for military service (see page 72) were the following :

Merton Covey Robbins
Perley Orman Ray
Julius Spear Turrill

ASSOCIATE ALUMNI

President, Robert H. Fleming, Chicago
Vice-President, Hon. Elihu B. Taft, Burlington
Secretary, Charles E. Allen, Burlington
Treasurer, James H. Macomber, Burlington
Obituary Committee, Hon. G. G. Benedict, Prof. J. E. Goodrich,
Principal S. W. Landon, J. Isham Bliss, D. D.
Executive Committee, Rev. S. L. Bates, Hon. Elias Lyman, J. D.
Denison, Hon. Henry W. Hill, C. H. Dunton, D. D.

Orator in 1898, John H. Converse, LL.D.
Poet in 1898, George F. Hunting, D. D.

Local Alumni Associations, designed to cherish the college spirit and promote the interests of the University in their several localities, have been formed as follows :

THE NEW YORK ASSOCIATION for New York City and vicinity :

President, John H. Converse, LL. D. ; *Vice-Presidents*, Prof. James R. Wheeler, Ph. D., and George L. Wheelock ; *Secretary and Treasurer*, Philip J. Ross ; *Executive Committee*, Fred M. Corse, Hon. D. P. Kingsley, D. L. Eady, W. C. Flanders, George Peterson ; *Executive Committee* for the younger Alumni : William A. Mitchell, P. J. Ross, W. M. Crombie.

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SUMMARY

Classical Students, 82; Literary-Scientific, 77; Engineering, 70;	
Chemical, 85; Agricultural, 24; unclassified, 4. Total.....	292
Seniors, 48; Juniors, 63; Sophomores, 73; Freshmen, 93;	
special, 15. Total Academic Students.....	292
Medical Students, 1898.....	210
Dairy Students, 1898.....	52
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